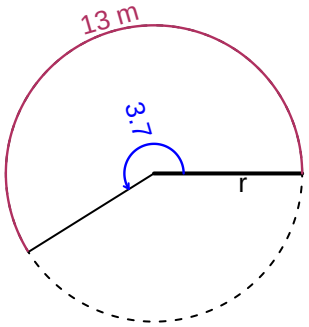
Name: Date:

Trig Final (TEST v600)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

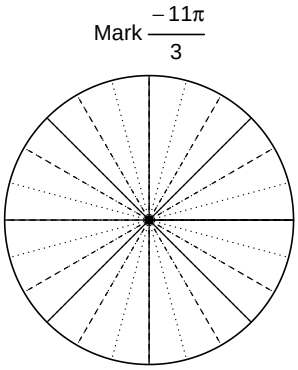
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The arc length is 13 meters. The angle measure is 3.7 radians. How long is the radius in meters?

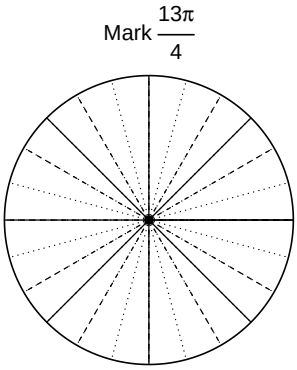


Question 2

Consider angles $\frac{-11\pi}{3}$ and $\frac{13\pi}{4}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\cos\left(\frac{-11\pi}{3}\right)$ and $\sin\left(\frac{13\pi}{4}\right)$ by using a unit circle (provided separately).



Find $\cos(-11\pi/3)$



Find $\sin(13\pi/4)$

Question 3

If $\sin(\theta) = \frac{-60}{61}$, and θ is in quadrant IV, determine an exact value for $\cos(\theta)$.

Question 4

A mass-spring system oscillates vertically with a midline at $y = -7.03$ meters, a frequency of 5.61 Hz, and an amplitude of 8.82 meters. At $t = 0$, the mass is at the minimum height. Write an equation to model the height (y in meters) as a function of time (t in seconds).

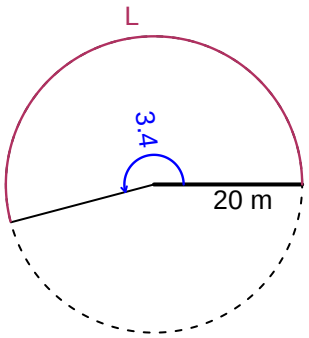
Name: Date:

Trig Final (TEST v601)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

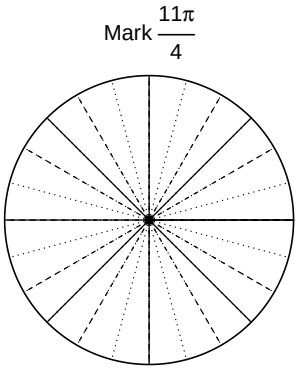
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The radius is 20 meters. The angle measure is 3.4 radians. How long is the arc in meters?

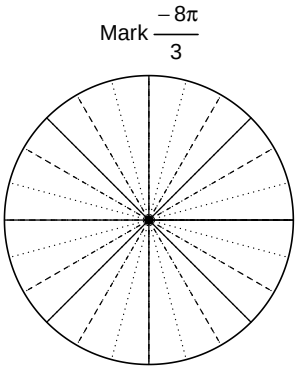


Question 2

Consider angles $\frac{11\pi}{4}$ and $\frac{-8\pi}{3}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\cos\left(\frac{11\pi}{4}\right)$ and $\sin\left(\frac{-8\pi}{3}\right)$ by using a unit circle (provided separately).



Find $\cos(11\pi/4)$



Find $\sin(-8\pi/3)$

Question 3

If $\sin(\theta) = \frac{-56}{65}$, and θ is in quadrant III, determine an exact value for $\cos(\theta)$.

Question 4

A mass-spring system oscillates vertically with a midline at $y = -7.24$ meters, a frequency of 2.38 Hz, and an amplitude of 4.78 meters. At $t = 0$, the mass is at the minimum height. Write an equation to model the height (y in meters) as a function of time (t in seconds).

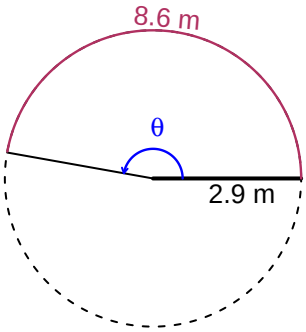
Name: Date:

Trig Final (TEST v602)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

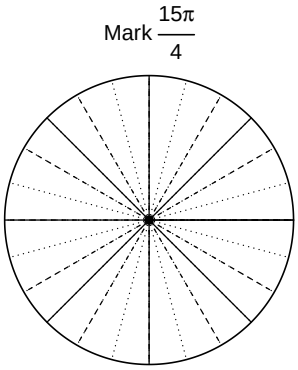
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The arc length is 8.6 meters. The radius is 2.9 meters. What is the angle measure in radians?

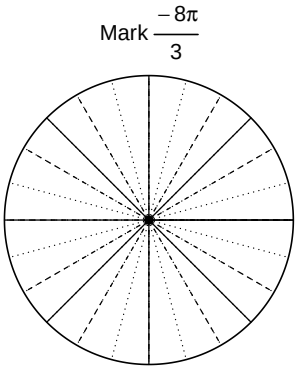


Question 2

Consider angles $\frac{15\pi}{4}$ and $\frac{-8\pi}{3}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\cos\left(\frac{15\pi}{4}\right)$ and $\sin\left(\frac{-8\pi}{3}\right)$ by using a unit circle (provided separately).



Find $\cos(15\pi/4)$



Find $\sin(-8\pi/3)$

Question 3

If $\cos(\theta) = \frac{-7}{25}$, and θ is in quadrant III, determine an exact value for $\sin(\theta)$.

Question 4

A mass-spring system oscillates vertically with a frequency of 8.36 Hz, a midline at $y = -6.46$ meters, and an amplitude of 5.4 meters. At $t = 0$, the mass is at the maximum height. Write an equation to model the height (y in meters) as a function of time (t in seconds).

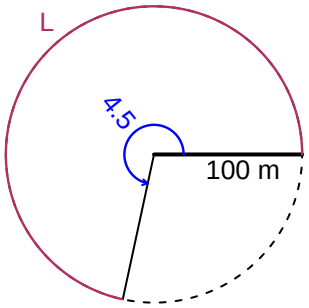
Name: Date:

Trig Final (TEST v603)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

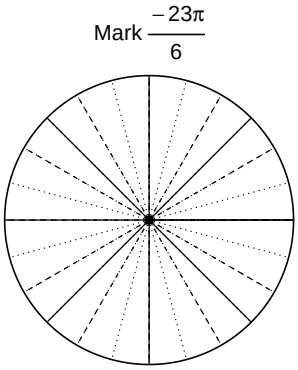
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The radius is 100 meters. The angle measure is 4.5 radians. How long is the arc in meters?

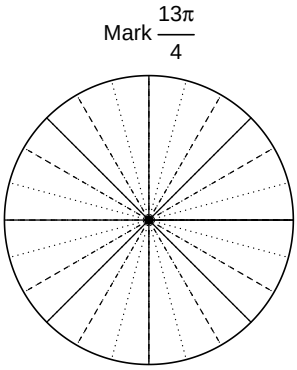


Question 2

Consider angles $\frac{-23\pi}{6}$ and $\frac{13\pi}{4}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\cos\left(\frac{-23\pi}{6}\right)$ and $\sin\left(\frac{13\pi}{4}\right)$ by using a unit circle (provided separately).



Find $\cos(-23\pi/6)$



Find $\sin(13\pi/4)$

Question 3

If $\sin(\theta) = \frac{-55}{73}$, and θ is in quadrant III, determine an exact value for $\cos(\theta)$.

Question 4

A mass-spring system oscillates vertically with a midline at $y = 6.98$ meters, a frequency of 8.84 Hz, and an amplitude of 3.33 meters. At $t = 0$, the mass is at the minimum height. Write an equation to model the height (y in meters) as a function of time (t in seconds).

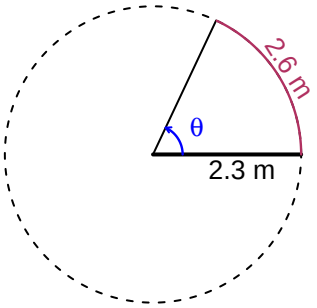
Name: Date:

Trig Final (TEST v604)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

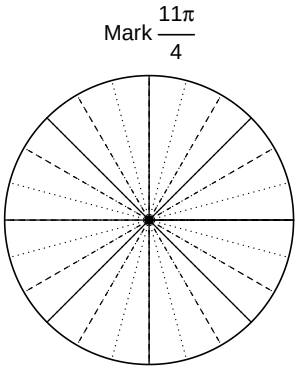
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The arc length is 2.6 meters. The radius is 2.3 meters. What is the angle measure in radians?

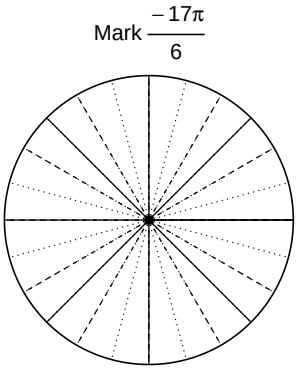


Question 2

Consider angles $\frac{11\pi}{4}$ and $\frac{-17\pi}{6}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\cos\left(\frac{11\pi}{4}\right)$ and $\sin\left(\frac{-17\pi}{6}\right)$ by using a unit circle (provided separately).



Find $\cos(11\pi/4)$



Find $\sin(-17\pi/6)$

Question 3

If $\cos(\theta) = \frac{-16}{65}$, and θ is in quadrant II, determine an exact value for $\tan(\theta)$.

Question 4

A mass-spring system oscillates vertically with a frequency of 3.55 Hz, an amplitude of 5.22 meters, and a midline at $y = 7.58$ meters. At $t = 0$, the mass is at the minimum height. Write an equation to model the height (y in meters) as a function of time (t in seconds).

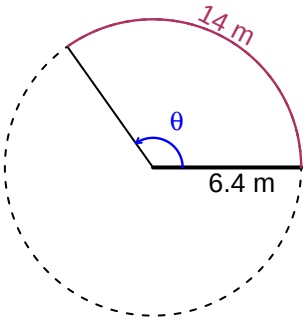
Name: Date:

Trig Final (TEST v605)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

Question 1

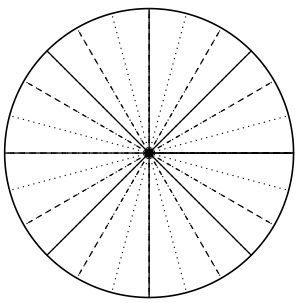
In the figure below, we see a circle and a central angle that subtends an arc. The radius is 6.4 meters. The arc length is 14 meters. What is the angle measure in radians?



Question 2

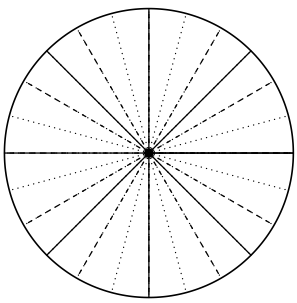
Consider angles $\frac{-7\pi}{3}$ and $\frac{9\pi}{4}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\cos\left(\frac{-7\pi}{3}\right)$ and $\sin\left(\frac{9\pi}{4}\right)$ by using a unit circle (provided separately).

Mark $\frac{-7\pi}{3}$



Find $\cos(-7\pi/3)$

Mark $\frac{9\pi}{4}$



Find $\sin(9\pi/4)$

Question 3

If $\sin(\theta) = \frac{77}{85}$, and θ is in quadrant II, determine an exact value for $\tan(\theta)$.

Question 4

A mass-spring system oscillates vertically with an amplitude of 7.66 meters, a midline at $y = 2.13$ meters, and a frequency of 3.66 Hz. At $t = 0$, the mass is at the maximum height. Write an equation to model the height (y in meters) as a function of time (t in seconds).

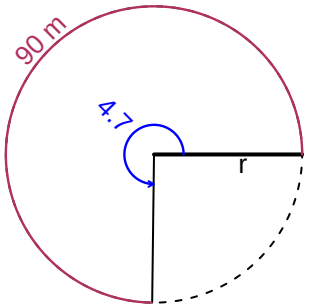
Name: Date:

Trig Final (TEST v606)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

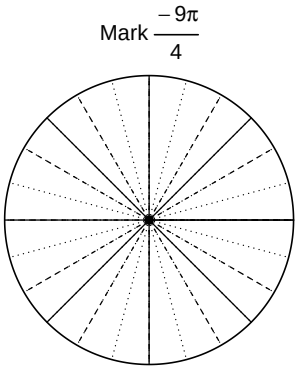
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The angle measure is 4.7 radians. The arc length is 90 meters. How long is the radius in meters?

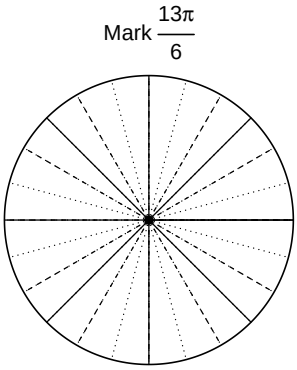


Question 2

Consider angles $\frac{-9\pi}{4}$ and $\frac{13\pi}{6}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\cos\left(\frac{-9\pi}{4}\right)$ and $\sin\left(\frac{13\pi}{6}\right)$ by using a unit circle (provided separately).



Find $\cos(-9\pi/4)$



Find $\sin(13\pi/6)$

Question 3

If $\tan(\theta) = \frac{-15}{8}$, and θ is in quadrant IV, determine an exact value for $\sin(\theta)$.

Question 4

A mass-spring system oscillates vertically with a midline at $y = 5.97$ meters, an amplitude of 2.2 meters, and a frequency of 7.41 Hz. At $t = 0$, the mass is at the minimum height. Write an equation to model the height (y in meters) as a function of time (t in seconds).

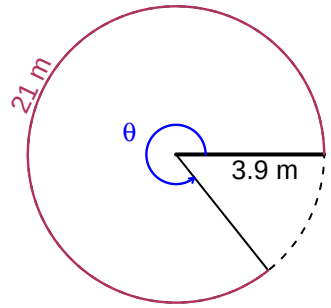
Name: Date:

Trig Final (TEST v607)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

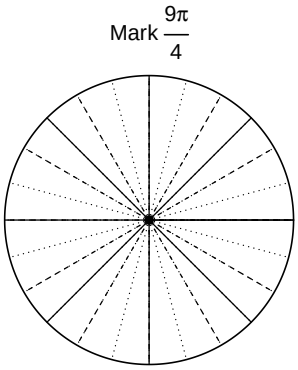
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The radius is 3.9 meters. The arc length is 21 meters. What is the angle measure in radians?

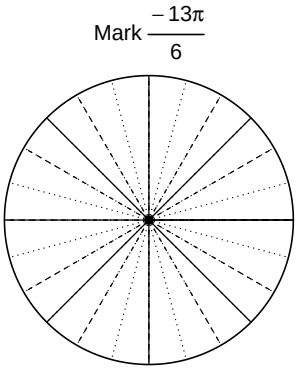


Question 2

Consider angles $\frac{9\pi}{4}$ and $\frac{-13\pi}{6}$. For each angle, use a spiral with an arm head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\sin\left(\frac{9\pi}{4}\right)$ and $\cos\left(\frac{-13\pi}{6}\right)$ by using a unit circle (provided separately).



Find $\sin(9\pi/4)$



Find $\cos(-13\pi/6)$

Question 3

If $\sin(\theta) = \frac{-77}{85}$, and θ is in quadrant III, determine an exact value for $\cos(\theta)$.

Question 4

A mass-spring system oscillates vertically with a frequency of 3.78 Hz, an amplitude of 8.57 meters, and a midline at $y = -5.54$ meters. At $t = 0$, the mass is at the maximum height. Write an equation to model the height (y in meters) as a function of time (t in seconds).

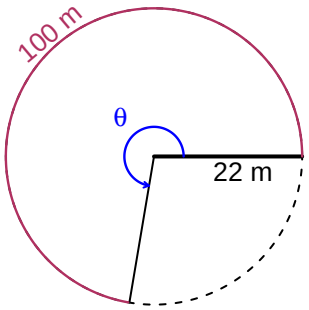
Name: Date:

Trig Final (TEST v608)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

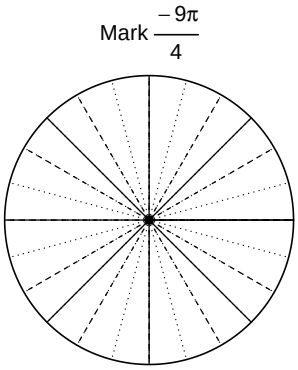
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The arc length is 100 meters. The radius is 22 meters. What is the angle measure in radians?

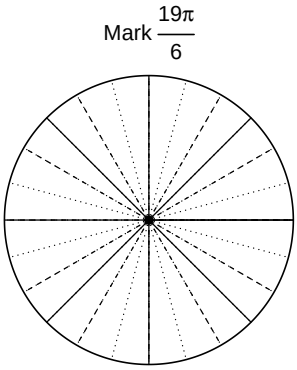


Question 2

Consider angles $\frac{-9\pi}{4}$ and $\frac{19\pi}{6}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\sin\left(\frac{-9\pi}{4}\right)$ and $\cos\left(\frac{19\pi}{6}\right)$ by using a unit circle (provided separately).



Find $\sin(-9\pi/4)$



Find $\cos(19\pi/6)$

Question 3

If $\cos(\theta) = \frac{-65}{97}$, and θ is in quadrant II, determine an exact value for $\sin(\theta)$.

Question 4

A mass-spring system oscillates vertically with an amplitude of 4.56 meters, a frequency of 8.82 Hz, and a midline at $y = 2.52$ meters. At $t = 0$, the mass is at the maximum height. Write an equation to model the height (y in meters) as a function of time (t in seconds).

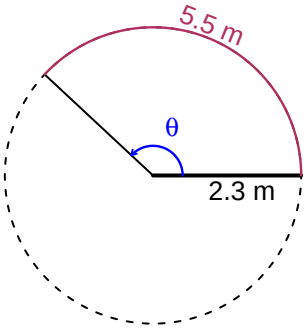
Name: Date:

Trig Final (TEST v609)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

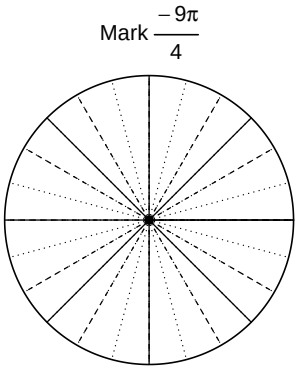
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The radius is 2.3 meters. The arc length is 5.5 meters. What is the angle measure in radians?

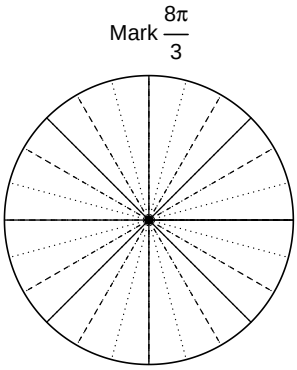


Question 2

Consider angles $\frac{-9\pi}{4}$ and $\frac{8\pi}{3}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\cos\left(\frac{-9\pi}{4}\right)$ and $\sin\left(\frac{8\pi}{3}\right)$ by using a unit circle (provided separately).



Find $\cos(-9\pi/4)$



Find $\sin(8\pi/3)$

Question 3

If $\sin(\theta) = \frac{-60}{61}$, and θ is in quadrant IV, determine an exact value for $\tan(\theta)$.

Question 4

A mass-spring system oscillates vertically with a frequency of 5.42 Hz, an amplitude of 8.75 meters, and a midline at $y = -6.61$ meters. At $t = 0$, the mass is at the minimum height. Write an equation to model the height (y in meters) as a function of time (t in seconds).

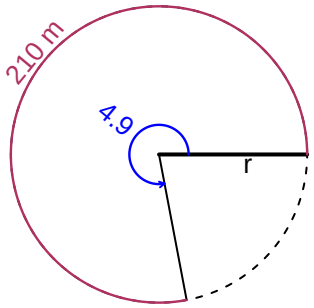
Name: Date:

Trig Final (TEST v610)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

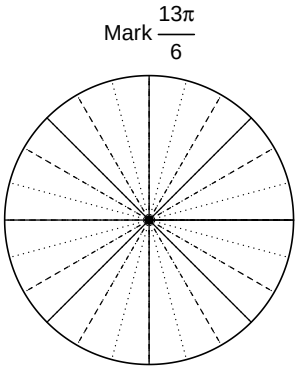
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The arc length is 210 meters. The angle measure is 4.9 radians. How long is the radius in meters?

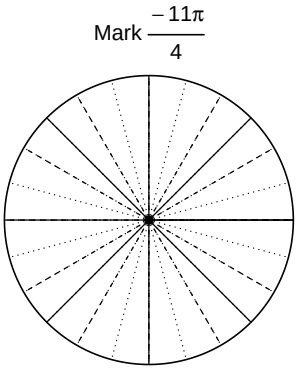


Question 2

Consider angles $\frac{13\pi}{6}$ and $\frac{-11\pi}{4}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\cos\left(\frac{13\pi}{6}\right)$ and $\sin\left(\frac{-11\pi}{4}\right)$ by using a unit circle (provided separately).



Find $\cos(13\pi/6)$



Find $\sin(-11\pi/4)$

Question 3

If $\sin(\theta) = \frac{40}{41}$, and θ is in quadrant II, determine an exact value for $\tan(\theta)$.

Question 4

A mass-spring system oscillates vertically with a frequency of 8.8 Hz, a midline at $y = -5.46$ meters, and an amplitude of 2.09 meters. At $t = 0$, the mass is at the midline and moving down. Write an equation to model the height (y in meters) as a function of time (t in seconds).

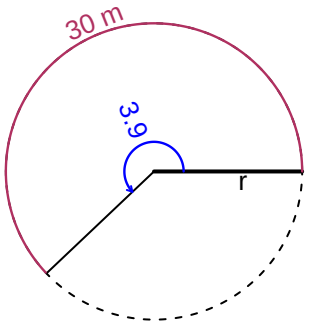
Name: Date:

Trig Final (TEST v611)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

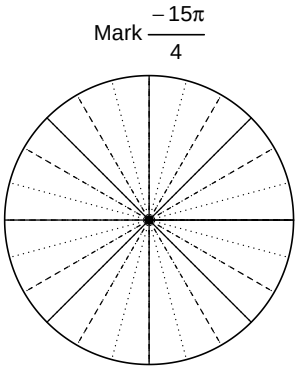
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The arc length is 30 meters. The angle measure is 3.9 radians. How long is the radius in meters?

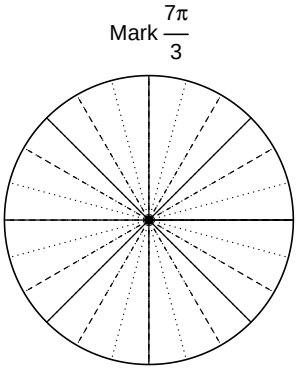


Question 2

Consider angles $\frac{-15\pi}{4}$ and $\frac{7\pi}{3}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\sin\left(\frac{-15\pi}{4}\right)$ and $\cos\left(\frac{7\pi}{3}\right)$ by using a unit circle (provided separately).



Find $\sin(-15\pi/4)$



Find $\cos(7\pi/3)$

Question 3

If $\sin(\theta) = \frac{80}{89}$, and θ is in quadrant II, determine an exact value for $\cos(\theta)$.

Question 4

A mass-spring system oscillates vertically with a frequency of 4.94 Hz, a midline at $y = -3.01$ meters, and an amplitude of 7.69 meters. At $t = 0$, the mass is at the midline and moving down. Write an equation to model the height (y in meters) as a function of time (t in seconds).

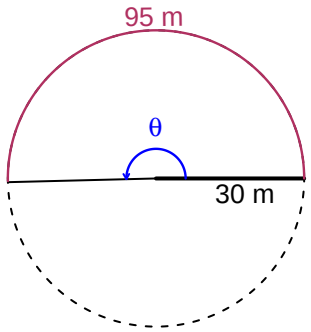
Name: Date:

Trig Final (TEST v612)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

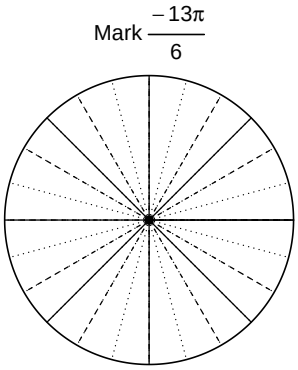
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The radius is 30 meters. The arc length is 95 meters. What is the angle measure in radians?

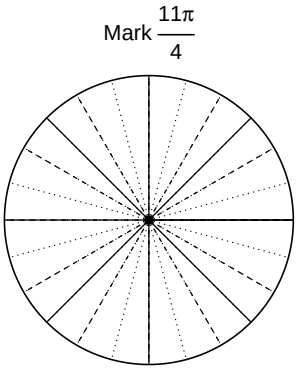


Question 2

Consider angles $\frac{-13\pi}{6}$ and $\frac{11\pi}{4}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\cos\left(\frac{-13\pi}{6}\right)$ and $\sin\left(\frac{11\pi}{4}\right)$ by using a unit circle (provided separately).



Find $\cos(-13\pi/6)$



Find $\sin(11\pi/4)$

Question 3

If $\cos(\theta) = \frac{-5}{13}$, and θ is in quadrant III, determine an exact value for $\sin(\theta)$.

Question 4

A mass-spring system oscillates vertically with a midline at $y = 2.18$ meters, a frequency of 6.37 Hz, and an amplitude of 4.69 meters. At $t = 0$, the mass is at the midline and moving up. Write an equation to model the height (y in meters) as a function of time (t in seconds).

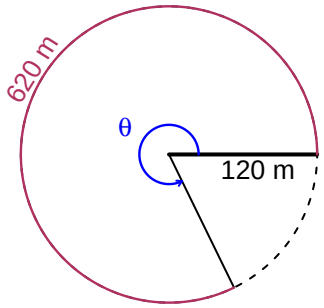
Name: Date:

Trig Final (TEST v613)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

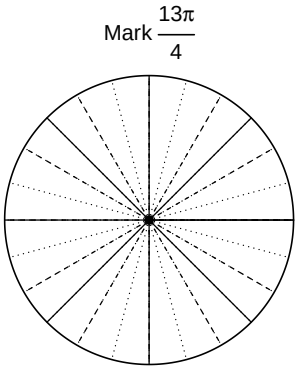
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The radius is 120 meters. The arc length is 620 meters. What is the angle measure in radians?

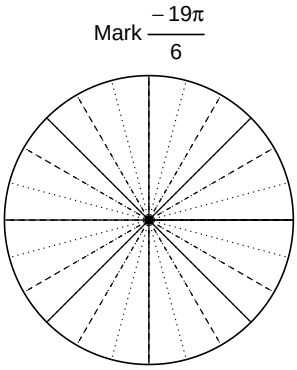


Question 2

Consider angles $\frac{13\pi}{4}$ and $\frac{-19\pi}{6}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\cos\left(\frac{13\pi}{4}\right)$ and $\sin\left(\frac{-19\pi}{6}\right)$ by using a unit circle (provided separately).



Find $\cos(13\pi/4)$



Find $\sin(-19\pi/6)$

Question 3

If $\cos(\theta) = \frac{33}{65}$, and θ is in quadrant IV, determine an exact value for $\tan(\theta)$.

Question 4

A mass-spring system oscillates vertically with a midline at $y = 6.05$ meters, an amplitude of 2.56 meters, and a frequency of 8.54 Hz. At $t = 0$, the mass is at the minimum height. Write an equation to model the height (y in meters) as a function of time (t in seconds).

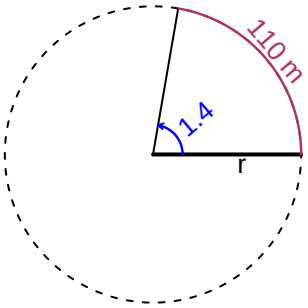
Name: Date:

Trig Final (TEST v614)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

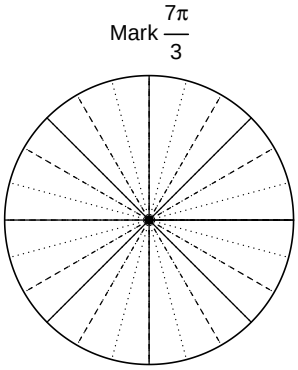
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The angle measure is 1.4 radians. The arc length is 110 meters. How long is the radius in meters?

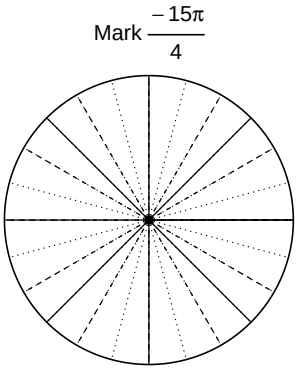


Question 2

Consider angles $\frac{7\pi}{3}$ and $\frac{-15\pi}{4}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\sin\left(\frac{7\pi}{3}\right)$ and $\cos\left(\frac{-15\pi}{4}\right)$ by using a unit circle (provided separately).



Find $\sin(7\pi/3)$



Find $\cos(-15\pi/4)$

Question 3

If $\cos(\theta) = \frac{-36}{85}$, and θ is in quadrant III, determine an exact value for $\tan(\theta)$.

Question 4

A mass-spring system oscillates vertically with an amplitude of 7.87 meters, a frequency of 4.32 Hz, and a midline at $y = -3.29$ meters. At $t = 0$, the mass is at the midline and moving down. Write an equation to model the height (y in meters) as a function of time (t in seconds).

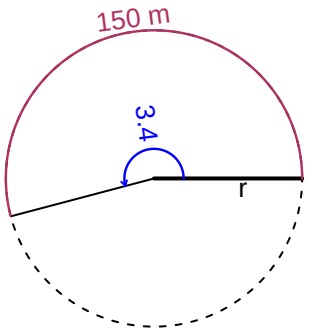
Name: Date:

Trig Final (TEST v615)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

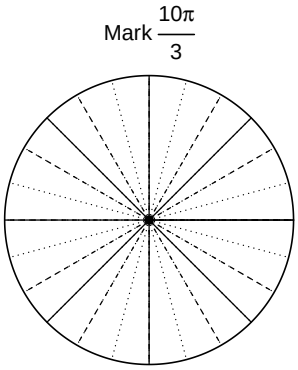
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The angle measure is 3.4 radians. The arc length is 150 meters. How long is the radius in meters?

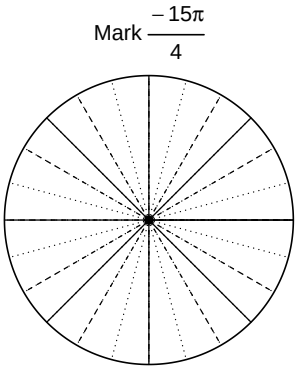


Question 2

Consider angles $\frac{10\pi}{3}$ and $\frac{-15\pi}{4}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\sin\left(\frac{10\pi}{3}\right)$ and $\cos\left(\frac{-15\pi}{4}\right)$ by using a unit circle (provided separately).



Find $\sin(10\pi/3)$



Find $\cos(-15\pi/4)$

Question 3

If $\tan(\theta) = \frac{-40}{9}$, and θ is in quadrant IV, determine an exact value for $\sin(\theta)$.

Question 4

A mass-spring system oscillates vertically with a frequency of 2.31 Hz, an amplitude of 4.62 meters, and a midline at $y = 7.02$ meters. At $t = 0$, the mass is at the maximum height. Write an equation to model the height (y in meters) as a function of time (t in seconds).

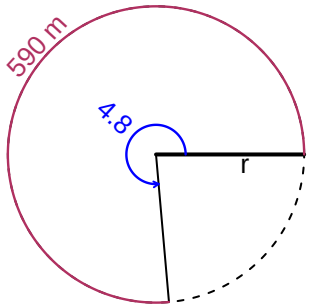
Name: Date:

Trig Final (TEST v616)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

Question 1

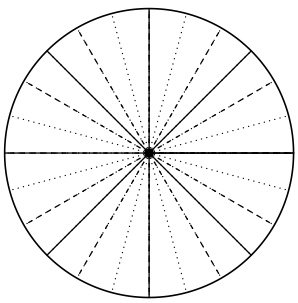
In the figure below, we see a circle and a central angle that subtends an arc. The angle measure is 4.8 radians. The arc length is 590 meters. How long is the radius in meters?



Question 2

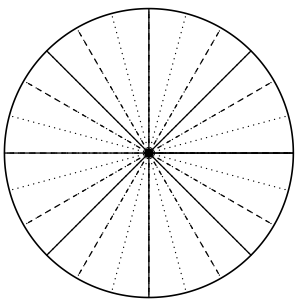
Consider angles $\frac{10\pi}{3}$ and $\frac{-13\pi}{4}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\cos\left(\frac{10\pi}{3}\right)$ and $\sin\left(\frac{-13\pi}{4}\right)$ by using a unit circle (provided separately).

Mark $\frac{10\pi}{3}$



Find $\cos(10\pi/3)$

Mark $\frac{-13\pi}{4}$



Find $\sin(-13\pi/4)$

Question 3

If $\tan(\theta) = \frac{-56}{33}$, and θ is in quadrant II, determine an exact value for $\cos(\theta)$.

Question 4

A mass-spring system oscillates vertically with a midline at $y = -2.74$ meters, a frequency of 7.72 Hz, and an amplitude of 6.18 meters. At $t = 0$, the mass is at the midline and moving down. Write an equation to model the height (y in meters) as a function of time (t in seconds).

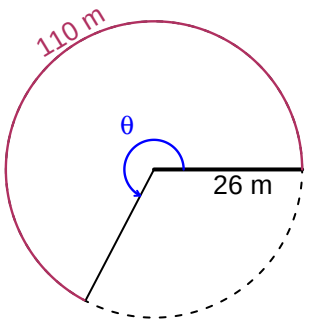
Name: Date:

Trig Final (TEST v617)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

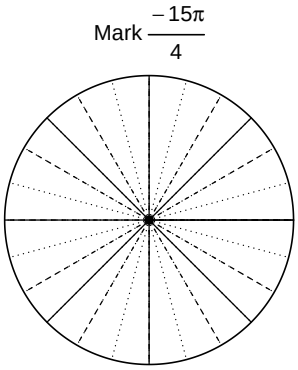
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The arc length is 110 meters. The radius is 26 meters. What is the angle measure in radians?

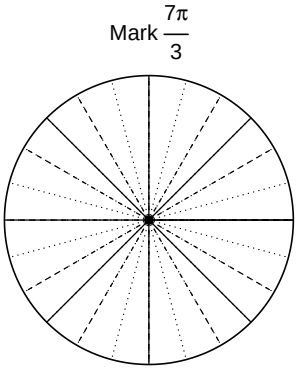


Question 2

Consider angles $\frac{-15\pi}{4}$ and $\frac{7\pi}{3}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\sin\left(\frac{-15\pi}{4}\right)$ and $\cos\left(\frac{7\pi}{3}\right)$ by using a unit circle (provided separately).



Find $\sin(-15\pi/4)$



Find $\cos(7\pi/3)$

Question 3

If $\tan(\theta) = \frac{80}{39}$, and θ is in quadrant III, determine an exact value for $\sin(\theta)$.

Question 4

A mass-spring system oscillates vertically with a frequency of 4.36 Hz, an amplitude of 5.48 meters, and a midline at $y = -7.63$ meters. At $t = 0$, the mass is at the midline and moving down. Write an equation to model the height (y in meters) as a function of time (t in seconds).

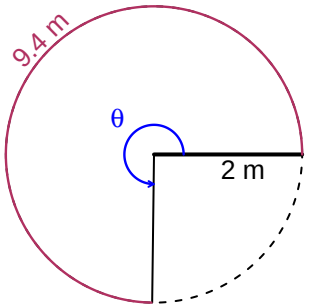
Name: Date:

Trig Final (TEST v618)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

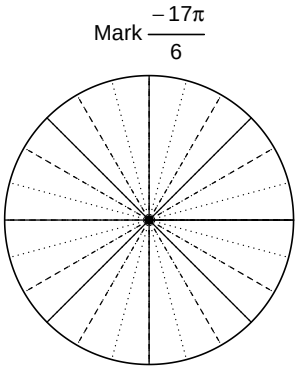
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The radius is 2 meters. The arc length is 9.4 meters. What is the angle measure in radians?

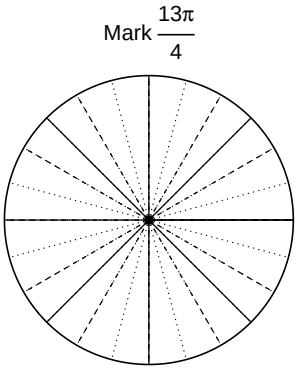


Question 2

Consider angles $\frac{-17\pi}{6}$ and $\frac{13\pi}{4}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\sin\left(\frac{-17\pi}{6}\right)$ and $\cos\left(\frac{13\pi}{4}\right)$ by using a unit circle (provided separately).



Find $\sin(-17\pi/6)$



Find $\cos(13\pi/4)$

Question 3

If $\tan(\theta) = \frac{-60}{11}$, and θ is in quadrant IV, determine an exact value for $\cos(\theta)$.

Question 4

A mass-spring system oscillates vertically with a midline at $y = -5.59$ meters, an amplitude of 4.45 meters, and a frequency of 8.27 Hz. At $t = 0$, the mass is at the minimum height. Write an equation to model the height (y in meters) as a function of time (t in seconds).

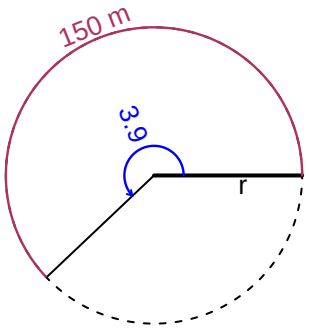
Name: Date:

Trig Final (TEST v619)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

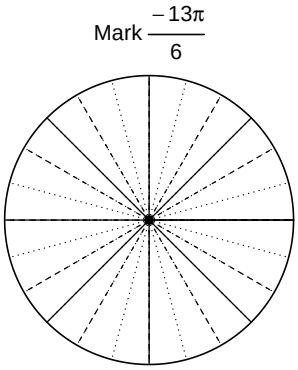
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The angle measure is 3.9 radians. The arc length is 150 meters. How long is the radius in meters?

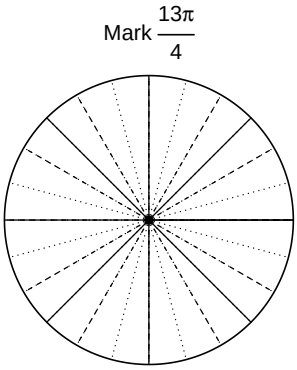


Question 2

Consider angles $\frac{-13\pi}{6}$ and $\frac{13\pi}{4}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\cos\left(\frac{-13\pi}{6}\right)$ and $\sin\left(\frac{13\pi}{4}\right)$ by using a unit circle (provided separately).



Find $\cos(-13\pi/6)$



Find $\sin(13\pi/4)$

Question 3

If $\tan(\theta) = \frac{40}{9}$, and θ is in quadrant III, determine an exact value for $\sin(\theta)$.

Question 4

A mass-spring system oscillates vertically with a midline at $y = 5.4$ meters, a frequency of 6.6 Hz, and an amplitude of 3.34 meters. At $t = 0$, the mass is at the minimum height. Write an equation to model the height (y in meters) as a function of time (t in seconds).

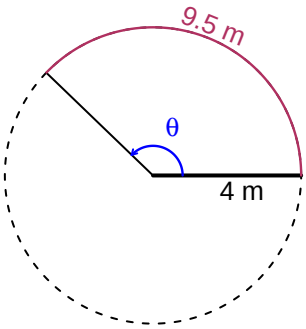
Name: Date:

Trig Final (TEST v620)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

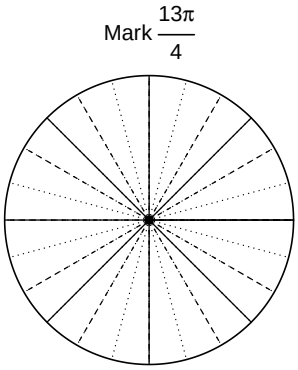
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The radius is 4 meters. The arc length is 9.5 meters. What is the angle measure in radians?

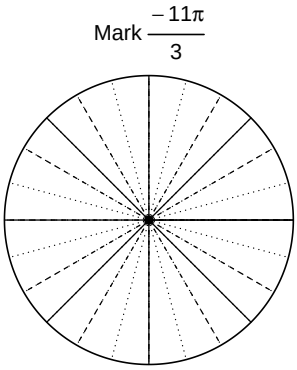


Question 2

Consider angles $\frac{13\pi}{4}$ and $\frac{-11\pi}{3}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\sin\left(\frac{13\pi}{4}\right)$ and $\cos\left(\frac{-11\pi}{3}\right)$ by using a unit circle (provided separately).



Find $\sin(13\pi/4)$



Find $\cos(-11\pi/3)$

Question 3

If $\cos(\theta) = \frac{39}{89}$, and θ is in quadrant IV, determine an exact value for $\tan(\theta)$.

Question 4

A mass-spring system oscillates vertically with an amplitude of 7.59 meters, a midline at $y = 6.18$ meters, and a frequency of 8.67 Hz. At $t = 0$, the mass is at the midline and moving up. Write an equation to model the height (y in meters) as a function of time (t in seconds).

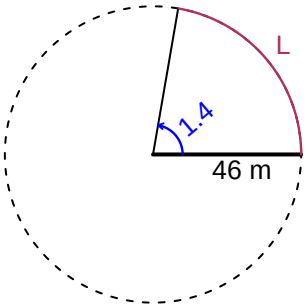
Name: Date:

Trig Final (TEST v621)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

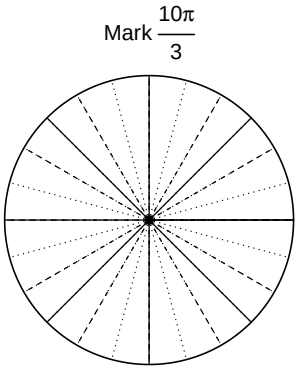
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The angle measure is 1.4 radians. The radius is 46 meters. How long is the arc in meters?

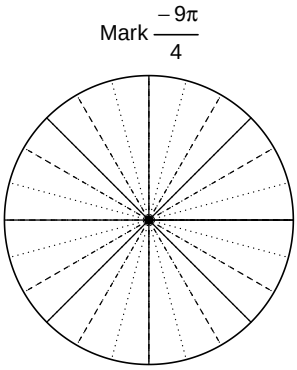


Question 2

Consider angles $\frac{10\pi}{3}$ and $\frac{-9\pi}{4}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\sin\left(\frac{10\pi}{3}\right)$ and $\cos\left(\frac{-9\pi}{4}\right)$ by using a unit circle (provided separately).



Find $\sin(10\pi/3)$



Find $\cos(-9\pi/4)$

Question 3

If $\sin(\theta) = \frac{55}{73}$, and θ is in quadrant II, determine an exact value for $\tan(\theta)$.

Question 4

A mass-spring system oscillates vertically with an amplitude of 7.19 meters, a midline at $y = 8.5$ meters, and a frequency of 4.9 Hz. At $t = 0$, the mass is at the midline and moving up. Write an equation to model the height (y in meters) as a function of time (t in seconds).

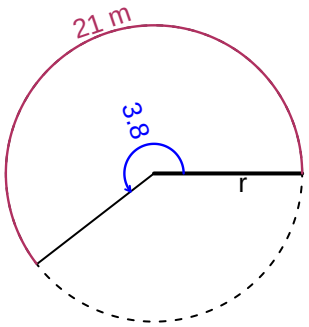
Name: Date:

Trig Final (TEST v622)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

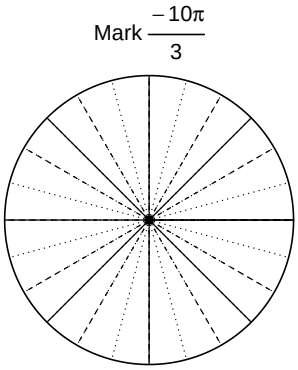
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The arc length is 21 meters. The angle measure is 3.8 radians. How long is the radius in meters?

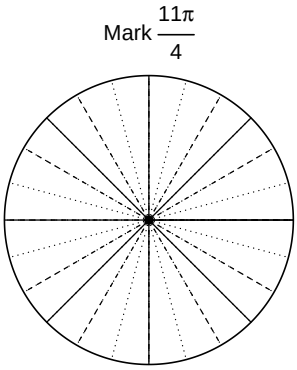


Question 2

Consider angles $\frac{-10\pi}{3}$ and $\frac{11\pi}{4}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\cos\left(\frac{-10\pi}{3}\right)$ and $\sin\left(\frac{11\pi}{4}\right)$ by using a unit circle (provided separately).



Find $\cos(-10\pi/3)$



Find $\sin(11\pi/4)$

Question 3

If $\cos(\theta) = \frac{-65}{97}$, and θ is in quadrant III, determine an exact value for $\tan(\theta)$.

Question 4

A mass-spring system oscillates vertically with an amplitude of 5.83 meters, a frequency of 2.59 Hz, and a midline at $y = 6.91$ meters. At $t = 0$, the mass is at the midline and moving up. Write an equation to model the height (y in meters) as a function of time (t in seconds).

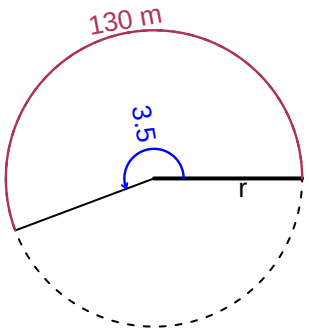
Name: Date:

Trig Final (TEST v623)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

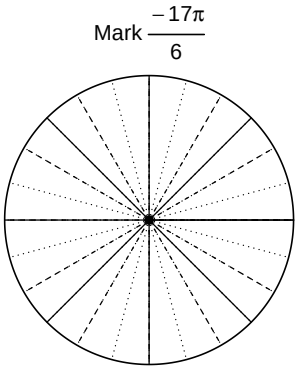
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The arc length is 130 meters. The angle measure is 3.5 radians. How long is the radius in meters?

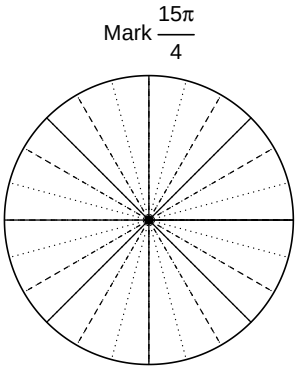


Question 2

Consider angles $\frac{-17\pi}{6}$ and $\frac{15\pi}{4}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\sin\left(\frac{-17\pi}{6}\right)$ and $\cos\left(\frac{15\pi}{4}\right)$ by using a unit circle (provided separately).



Find $\sin(-17\pi/6)$



Find $\cos(15\pi/4)$

Question 3

If $\sin(\theta) = \frac{-45}{53}$, and θ is in quadrant III, determine an exact value for $\tan(\theta)$.

Question 4

A mass-spring system oscillates vertically with an amplitude of 8.49 meters, a midline at $y = -6.04$ meters, and a frequency of 7.08 Hz. At $t = 0$, the mass is at the minimum height. Write an equation to model the height (y in meters) as a function of time (t in seconds).

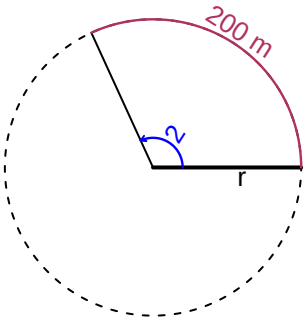
Name: Date:

Trig Final (TEST v624)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

Question 1

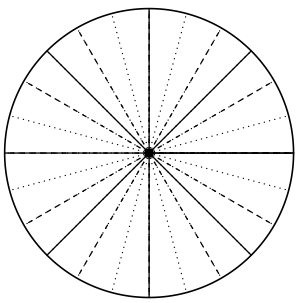
In the figure below, we see a circle and a central angle that subtends an arc. The arc length is 200 meters. The angle measure is 2 radians. How long is the radius in meters?



Question 2

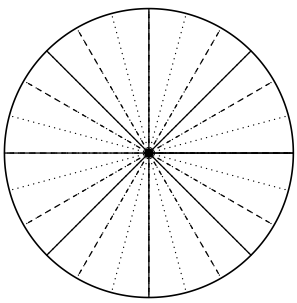
Consider angles $\frac{10\pi}{3}$ and $\frac{-11\pi}{4}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\sin\left(\frac{10\pi}{3}\right)$ and $\cos\left(\frac{-11\pi}{4}\right)$ by using a unit circle (provided separately).

Mark $\frac{10\pi}{3}$



Find $\sin(10\pi/3)$

Mark $\frac{-11\pi}{4}$



Find $\cos(-11\pi/4)$

Question 3

If $\sin(\theta) = \frac{80}{89}$, and θ is in quadrant II, determine an exact value for $\tan(\theta)$.

Question 4

A mass-spring system oscillates vertically with an amplitude of 2.5 meters, a frequency of 5.03 Hz, and a midline at $y = -6.2$ meters. At $t = 0$, the mass is at the midline and moving up. Write an equation to model the height (y in meters) as a function of time (t in seconds).

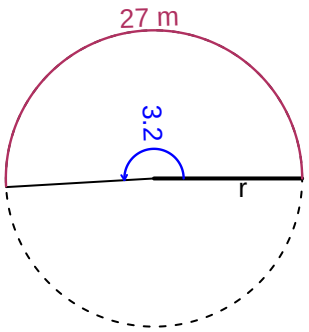
Name: Date:

Trig Final (TEST v625)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

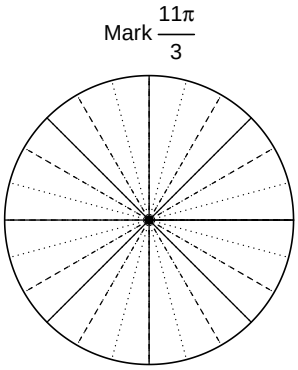
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The angle measure is 3.2 radians. The arc length is 27 meters. How long is the radius in meters?

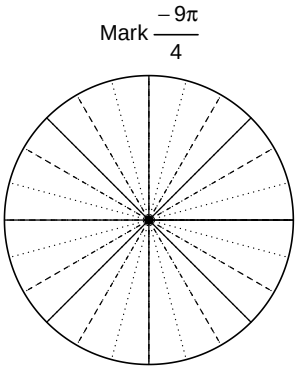


Question 2

Consider angles $\frac{11\pi}{3}$ and $\frac{-9\pi}{4}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\sin\left(\frac{11\pi}{3}\right)$ and $\cos\left(\frac{-9\pi}{4}\right)$ by using a unit circle (provided separately).



Find $\sin(11\pi/3)$



Find $\cos(-9\pi/4)$

Question 3

If $\tan(\theta) = \frac{12}{5}$, and θ is in quadrant III, determine an exact value for $\cos(\theta)$.

Question 4

A mass-spring system oscillates vertically with a midline at $y = -4.35$ meters, a frequency of 8.38 Hz, and an amplitude of 3.27 meters. At $t = 0$, the mass is at the midline and moving up. Write an equation to model the height (y in meters) as a function of time (t in seconds).

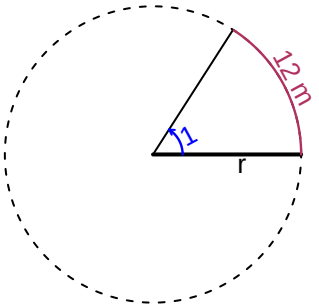
Name: Date:

Trig Final (TEST v626)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

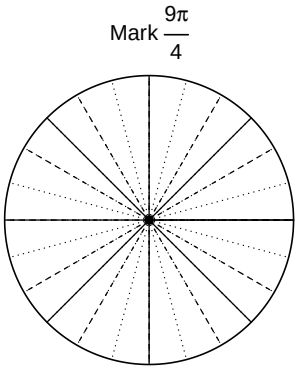
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The arc length is 12 meters. The angle measure is 1 radians. How long is the radius in meters?

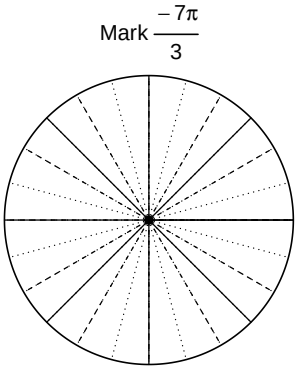


Question 2

Consider angles $\frac{9\pi}{4}$ and $\frac{-7\pi}{3}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\cos\left(\frac{9\pi}{4}\right)$ and $\sin\left(\frac{-7\pi}{3}\right)$ by using a unit circle (provided separately).



Find $\cos(9\pi/4)$



Find $\sin(-7\pi/3)$

Question 3

If $\cos(\theta) = \frac{-12}{37}$, and θ is in quadrant III, determine an exact value for $\tan(\theta)$.

Question 4

A mass-spring system oscillates vertically with a midline at $y = 2.68$ meters, a frequency of 6.85 Hz, and an amplitude of 5.05 meters. At $t = 0$, the mass is at the maximum height. Write an equation to model the height (y in meters) as a function of time (t in seconds).

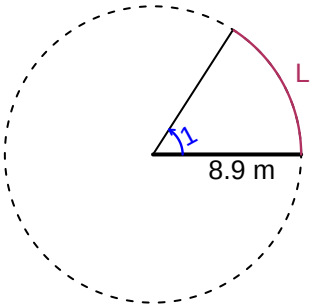
Name: Date:

Trig Final (TEST v627)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

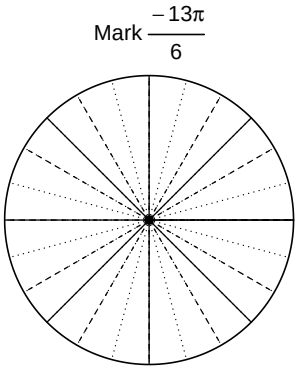
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The angle measure is 1 radians. The radius is 8.9 meters. How long is the arc in meters?

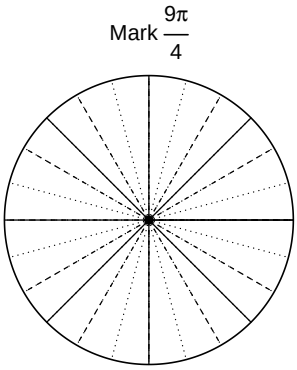


Question 2

Consider angles $\frac{-13\pi}{6}$ and $\frac{9\pi}{4}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\sin\left(\frac{-13\pi}{6}\right)$ and $\cos\left(\frac{9\pi}{4}\right)$ by using a unit circle (provided separately).



Find $\sin(-13\pi/6)$



Find $\cos(9\pi/4)$

Question 3

If $\cos(\theta) = \frac{-5}{13}$, and θ is in quadrant II, determine an exact value for $\sin(\theta)$.

Question 4

A mass-spring system oscillates vertically with a frequency of 7.6 Hz, a midline at $y = -8.96$ meters, and an amplitude of 3.43 meters. At $t = 0$, the mass is at the minimum height. Write an equation to model the height (y in meters) as a function of time (t in seconds).

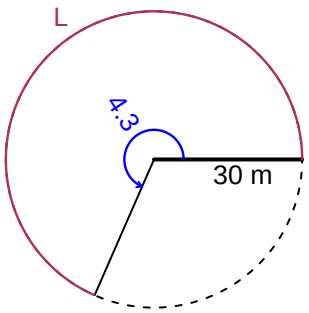
Name: Date:

Trig Final (TEST v628)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

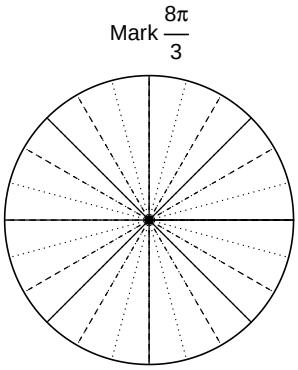
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The radius is 30 meters. The angle measure is 4.3 radians. How long is the arc in meters?

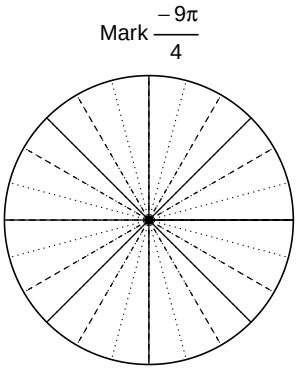


Question 2

Consider angles $\frac{8\pi}{3}$ and $\frac{-9\pi}{4}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\cos\left(\frac{8\pi}{3}\right)$ and $\sin\left(\frac{-9\pi}{4}\right)$ by using a unit circle (provided separately).



Find $\cos(8\pi/3)$



Find $\sin(-9\pi/4)$

Question 3

If $\sin(\theta) = \frac{-60}{61}$, and θ is in quadrant III, determine an exact value for $\tan(\theta)$.

Question 4

A mass-spring system oscillates vertically with an amplitude of 6.81 meters, a midline at $y = 2.34$ meters, and a frequency of 5 Hz. At $t = 0$, the mass is at the minimum height. Write an equation to model the height (y in meters) as a function of time (t in seconds).

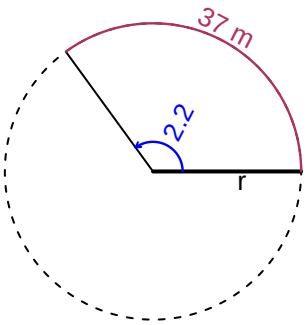
Name: Date:

Trig Final (TEST v629)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

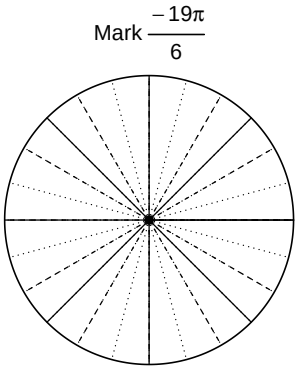
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The arc length is 37 meters. The angle measure is 2.2 radians. How long is the radius in meters?

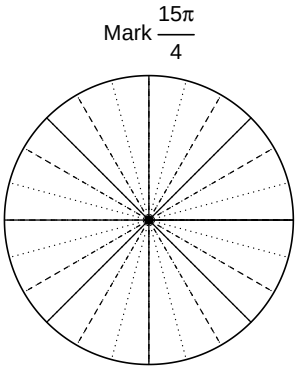


Question 2

Consider angles $\frac{-19\pi}{6}$ and $\frac{15\pi}{4}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\sin\left(\frac{-19\pi}{6}\right)$ and $\cos\left(\frac{15\pi}{4}\right)$ by using a unit circle (provided separately).



Find $\sin(-19\pi/6)$



Find $\cos(15\pi/4)$

Question 3

If $\tan(\theta) = \frac{-56}{33}$, and θ is in quadrant II, determine an exact value for $\cos(\theta)$.

Question 4

A mass-spring system oscillates vertically with a frequency of 2.22 Hz, an amplitude of 7.33 meters, and a midline at $y = -4.06$ meters. At $t = 0$, the mass is at the maximum height. Write an equation to model the height (y in meters) as a function of time (t in seconds).

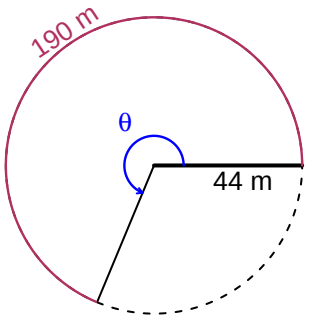
Name: Date:

Trig Final (TEST v630)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

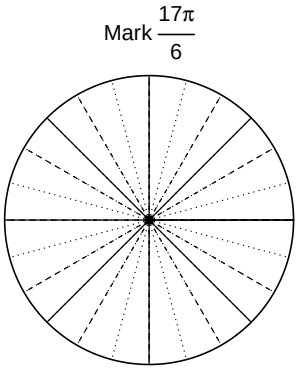
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The radius is 44 meters. The arc length is 190 meters. What is the angle measure in radians?

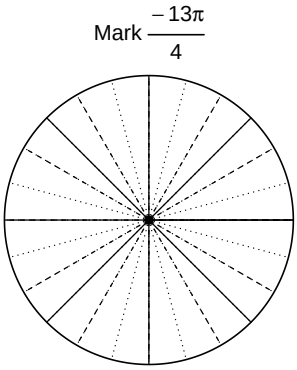


Question 2

Consider angles $\frac{17\pi}{6}$ and $\frac{-13\pi}{4}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\cos\left(\frac{17\pi}{6}\right)$ and $\sin\left(\frac{-13\pi}{4}\right)$ by using a unit circle (provided separately).



Find $\cos(17\pi/6)$



Find $\sin(-13\pi/4)$

Question 3

If $\sin(\theta) = \frac{-15}{17}$, and θ is in quadrant IV, determine an exact value for $\tan(\theta)$.

Question 4

A mass-spring system oscillates vertically with an amplitude of 2.05 meters, a frequency of 8.65 Hz, and a midline at $y = 6.87$ meters. At $t = 0$, the mass is at the maximum height. Write an equation to model the height (y in meters) as a function of time (t in seconds).

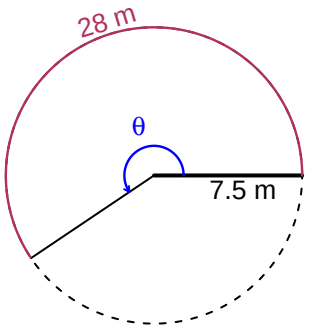
Name: Date:

Trig Final (TEST v631)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

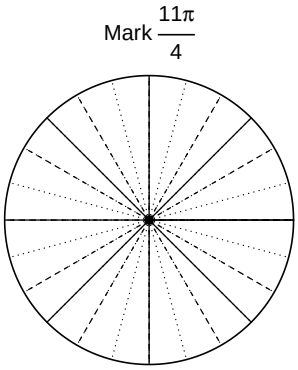
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The arc length is 28 meters. The radius is 7.5 meters. What is the angle measure in radians?

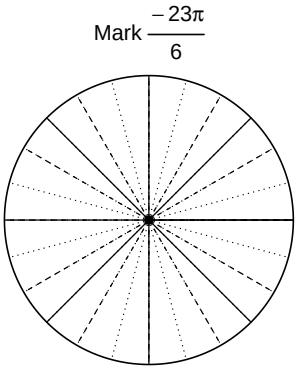


Question 2

Consider angles $\frac{11\pi}{4}$ and $\frac{-23\pi}{6}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\cos\left(\frac{11\pi}{4}\right)$ and $\sin\left(\frac{-23\pi}{6}\right)$ by using a unit circle (provided separately).



Find $\cos(11\pi/4)$



Find $\sin(-23\pi/6)$

Question 3

If $\sin(\theta) = \frac{63}{65}$, and θ is in quadrant II, determine an exact value for $\cos(\theta)$.

Question 4

A mass-spring system oscillates vertically with a midline at $y = 8.5$ meters, a frequency of 3 Hz, and an amplitude of 6.49 meters. At $t = 0$, the mass is at the midline and moving up. Write an equation to model the height (y in meters) as a function of time (t in seconds).

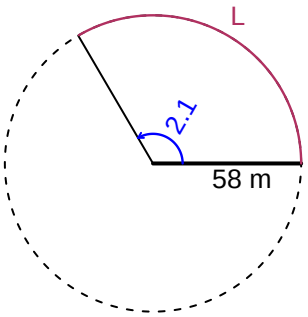
Name: Date:

Trig Final (TEST v632)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

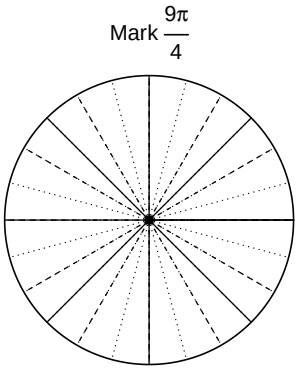
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The angle measure is 2.1 radians. The radius is 58 meters. How long is the arc in meters?

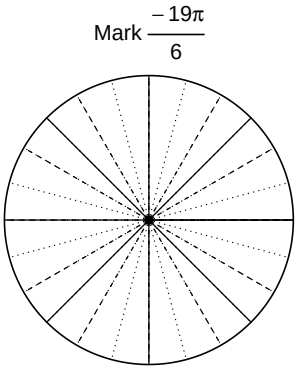


Question 2

Consider angles $\frac{9\pi}{4}$ and $\frac{-19\pi}{6}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\cos\left(\frac{9\pi}{4}\right)$ and $\sin\left(\frac{-19\pi}{6}\right)$ by using a unit circle (provided separately).



Find $\cos(9\pi/4)$



Find $\sin(-19\pi/6)$

Question 3

If $\tan(\theta) = \frac{-77}{36}$, and θ is in quadrant IV, determine an exact value for $\cos(\theta)$.

Question 4

A mass-spring system oscillates vertically with an amplitude of 2.05 meters, a frequency of 7.25 Hz, and a midline at $y = -4.55$ meters. At $t = 0$, the mass is at the maximum height. Write an equation to model the height (y in meters) as a function of time (t in seconds).

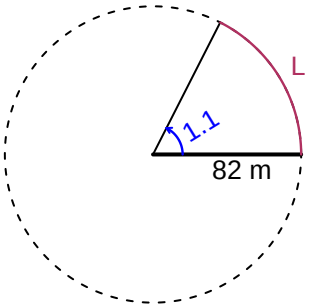
Name: Date:

Trig Final (TEST v633)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

Question 1

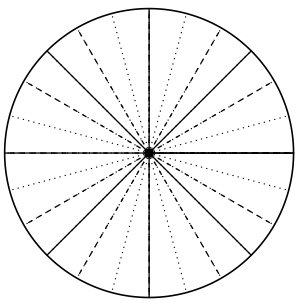
In the figure below, we see a circle and a central angle that subtends an arc. The angle measure is 1.1 radians. The radius is 82 meters. How long is the arc in meters?



Question 2

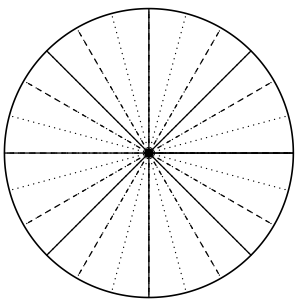
Consider angles $\frac{15\pi}{4}$ and $\frac{-8\pi}{3}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\sin\left(\frac{15\pi}{4}\right)$ and $\cos\left(\frac{-8\pi}{3}\right)$ by using a unit circle (provided separately).

Mark $\frac{15\pi}{4}$



Find $\sin(15\pi/4)$

Mark $\frac{-8\pi}{3}$



Find $\cos(-8\pi/3)$

Question 3

If $\tan(\theta) = \frac{-21}{20}$, and θ is in quadrant II, determine an exact value for $\sin(\theta)$.

Question 4

A mass-spring system oscillates vertically with a frequency of 8.48 Hz, a midline at $y = -4.95$ meters, and an amplitude of 2.9 meters. At $t = 0$, the mass is at the midline and moving down. Write an equation to model the height (y in meters) as a function of time (t in seconds).

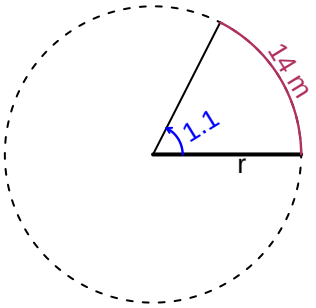
Name: Date:

Trig Final (TEST v634)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

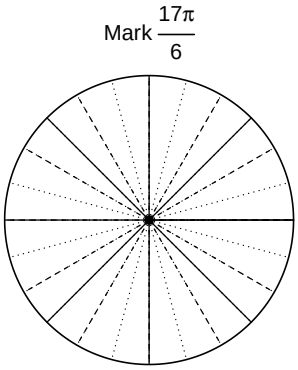
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The arc length is 14 meters. The angle measure is 1.1 radians. How long is the radius in meters?

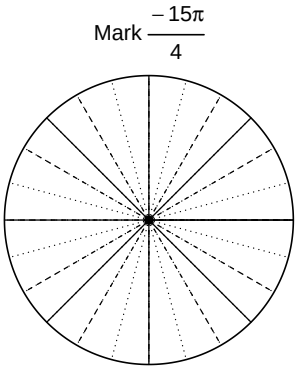


Question 2

Consider angles $\frac{17\pi}{6}$ and $\frac{-15\pi}{4}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\sin\left(\frac{17\pi}{6}\right)$ and $\cos\left(\frac{-15\pi}{4}\right)$ by using a unit circle (provided separately).



Find $\sin(17\pi/6)$



Find $\cos(-15\pi/4)$

Question 3

If $\sin(\theta) = \frac{60}{61}$, and θ is in quadrant II, determine an exact value for $\cos(\theta)$.

Question 4

A mass-spring system oscillates vertically with a midline at $y = -3.65$ meters, an amplitude of 7.19 meters, and a frequency of 8.42 Hz. At $t = 0$, the mass is at the midline and moving up. Write an equation to model the height (y in meters) as a function of time (t in seconds).

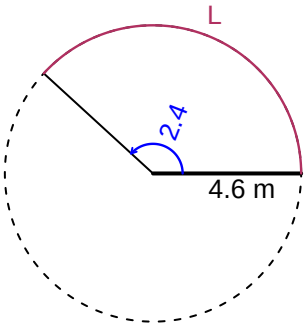
Name: Date:

Trig Final (TEST v635)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

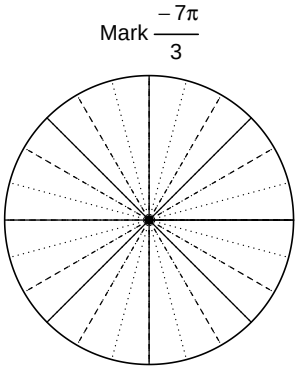
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The radius is 4.6 meters. The angle measure is 2.4 radians. How long is the arc in meters?

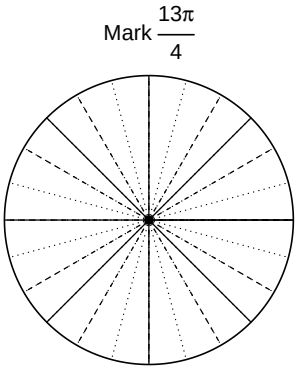


Question 2

Consider angles $\frac{-7\pi}{3}$ and $\frac{13\pi}{4}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\sin\left(\frac{-7\pi}{3}\right)$ and $\cos\left(\frac{13\pi}{4}\right)$ by using a unit circle (provided separately).



Find $\sin(-7\pi/3)$



Find $\cos(13\pi/4)$

Question 3

If $\tan(\theta) = \frac{-15}{8}$, and θ is in quadrant II, determine an exact value for $\cos(\theta)$.

Question 4

A mass-spring system oscillates vertically with a midline at $y = 4.89$ meters, a frequency of 7.6 Hz, and an amplitude of 3 meters. At $t = 0$, the mass is at the midline and moving down. Write an equation to model the height (y in meters) as a function of time (t in seconds).

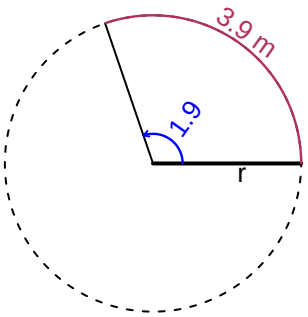
Name: Date:

Trig Final (TEST v636)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

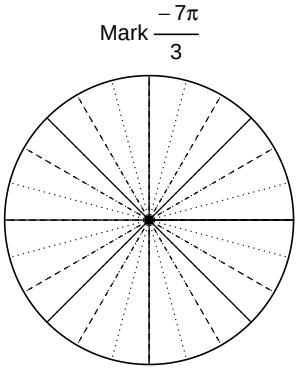
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The angle measure is 1.9 radians. The arc length is 3.9 meters. How long is the radius in meters?

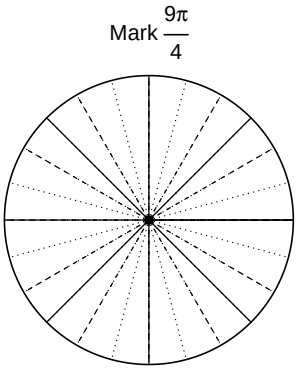


Question 2

Consider angles $\frac{-7\pi}{3}$ and $\frac{9\pi}{4}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\cos\left(\frac{-7\pi}{3}\right)$ and $\sin\left(\frac{9\pi}{4}\right)$ by using a unit circle (provided separately).



Find $\cos(-7\pi/3)$



Find $\sin(9\pi/4)$

Question 3

If $\cos(\theta) = \frac{-20}{29}$, and θ is in quadrant III, determine an exact value for $\tan(\theta)$.

Question 4

A mass-spring system oscillates vertically with a frequency of 5.49 Hz, an amplitude of 3.26 meters, and a midline at $y = 8.53$ meters. At $t = 0$, the mass is at the minimum height. Write an equation to model the height (y in meters) as a function of time (t in seconds).

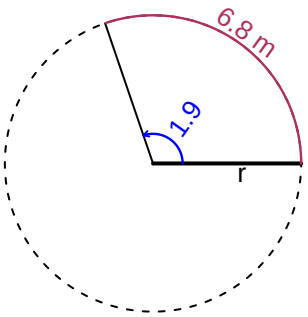
Name: Date:

Trig Final (TEST v637)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

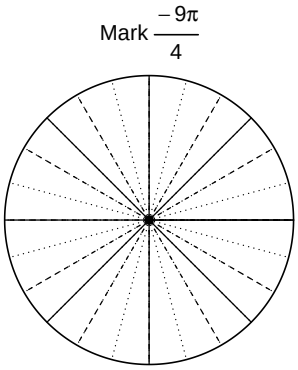
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The angle measure is 1.9 radians. The arc length is 6.8 meters. How long is the radius in meters?

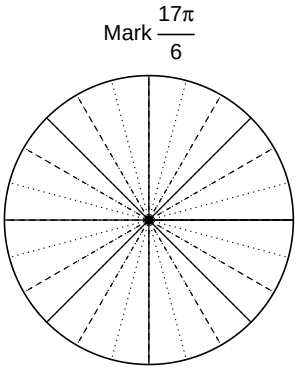


Question 2

Consider angles $\frac{-9\pi}{4}$ and $\frac{17\pi}{6}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\cos\left(\frac{-9\pi}{4}\right)$ and $\sin\left(\frac{17\pi}{6}\right)$ by using a unit circle (provided separately).



Find $\cos(-9\pi/4)$



Find $\sin(17\pi/6)$

Question 3

If $\tan(\theta) = \frac{35}{12}$, and θ is in quadrant III, determine an exact value for $\sin(\theta)$.

Question 4

A mass-spring system oscillates vertically with a midline at $y = -8.97$ meters, a frequency of 3.91 Hz, and an amplitude of 7.62 meters. At $t = 0$, the mass is at the maximum height. Write an equation to model the height (y in meters) as a function of time (t in seconds).

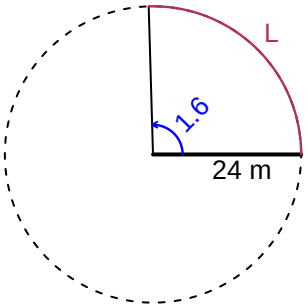
Name: Date:

Trig Final (TEST v638)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

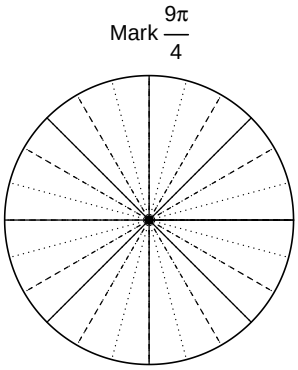
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The angle measure is 1.6 radians. The radius is 24 meters. How long is the arc in meters?

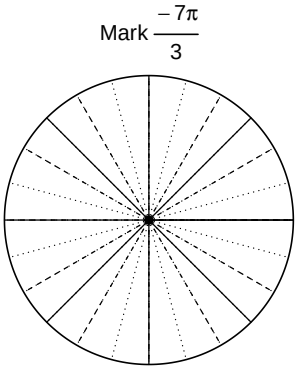


Question 2

Consider angles $\frac{9\pi}{4}$ and $\frac{-7\pi}{3}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\cos\left(\frac{9\pi}{4}\right)$ and $\sin\left(\frac{-7\pi}{3}\right)$ by using a unit circle (provided separately).



Find $\cos(9\pi/4)$



Find $\sin(-7\pi/3)$

Question 3

If $\cos(\theta) = \frac{20}{29}$, and θ is in quadrant IV, determine an exact value for $\sin(\theta)$.

Question 4

A mass-spring system oscillates vertically with an amplitude of 8.32 meters, a midline at $y = -4.05$ meters, and a frequency of 2.37 Hz. At $t = 0$, the mass is at the midline and moving down. Write an equation to model the height (y in meters) as a function of time (t in seconds).

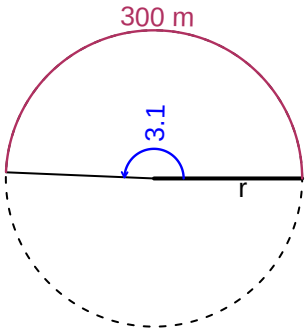
Name: Date:

Trig Final (TEST v639)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

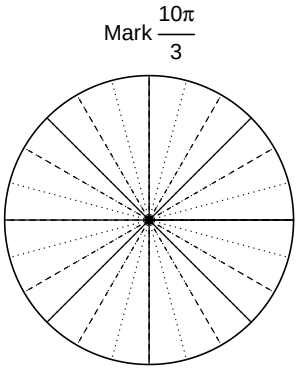
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The angle measure is 3.1 radians. The arc length is 300 meters. How long is the radius in meters?

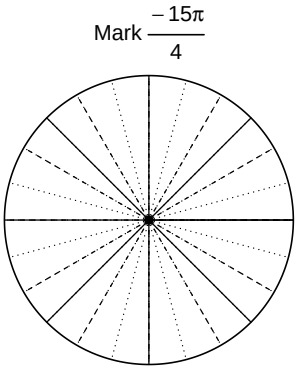


Question 2

Consider angles $\frac{10\pi}{3}$ and $\frac{-15\pi}{4}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\sin\left(\frac{10\pi}{3}\right)$ and $\cos\left(\frac{-15\pi}{4}\right)$ by using a unit circle (provided separately).



Find $\sin(10\pi/3)$



Find $\cos(-15\pi/4)$

Question 3

If $\tan(\theta) = \frac{55}{48}$, and θ is in quadrant III, determine an exact value for $\sin(\theta)$.

Question 4

A mass-spring system oscillates vertically with a frequency of 2.95 Hz, an amplitude of 5.43 meters, and a midline at $y = -7.87$ meters. At $t = 0$, the mass is at the maximum height. Write an equation to model the height (y in meters) as a function of time (t in seconds).

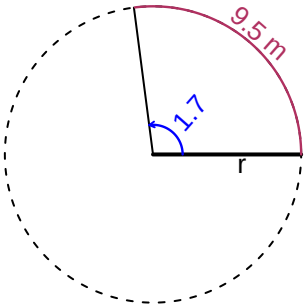
Name: Date:

Trig Final (TEST v640)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

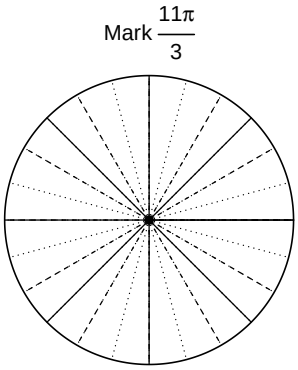
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The angle measure is 1.7 radians. The arc length is 9.5 meters. How long is the radius in meters?

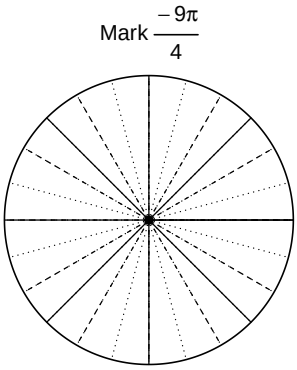


Question 2

Consider angles $\frac{11\pi}{3}$ and $\frac{-9\pi}{4}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\cos\left(\frac{11\pi}{3}\right)$ and $\sin\left(\frac{-9\pi}{4}\right)$ by using a unit circle (provided separately).



Find $\cos(11\pi/3)$



Find $\sin(-9\pi/4)$

Question 3

If $\cos(\theta) = \frac{36}{85}$, and θ is in quadrant IV, determine an exact value for $\tan(\theta)$.

Question 4

A mass-spring system oscillates vertically with a frequency of 8.31 Hz, a midline at $y = -7.11$ meters, and an amplitude of 3.45 meters. At $t = 0$, the mass is at the midline and moving up. Write an equation to model the height (y in meters) as a function of time (t in seconds).

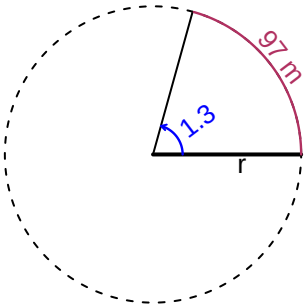
Name: Date:

Trig Final (TEST v641)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

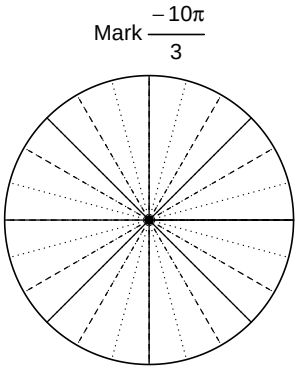
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The arc length is 97 meters. The angle measure is 1.3 radians. How long is the radius in meters?

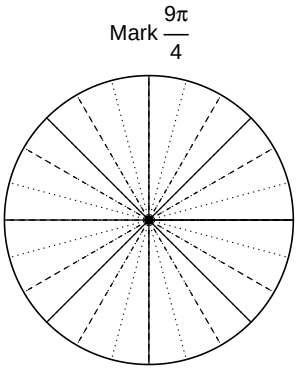


Question 2

Consider angles $\frac{-10\pi}{3}$ and $\frac{9\pi}{4}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\cos\left(\frac{-10\pi}{3}\right)$ and $\sin\left(\frac{9\pi}{4}\right)$ by using a unit circle (provided separately).



Find $\cos(-10\pi/3)$



Find $\sin(9\pi/4)$

Question 3

If $\tan(\theta) = \frac{15}{8}$, and θ is in quadrant III, determine an exact value for $\sin(\theta)$.

Question 4

A mass-spring system oscillates vertically with a frequency of 2.12 Hz, an amplitude of 7.33 meters, and a midline at $y = 3.34$ meters. At $t = 0$, the mass is at the minimum height. Write an equation to model the height (y in meters) as a function of time (t in seconds).

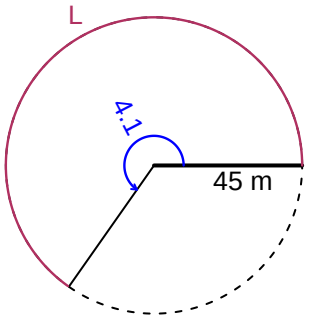
Name: Date:

Trig Final (TEST v642)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

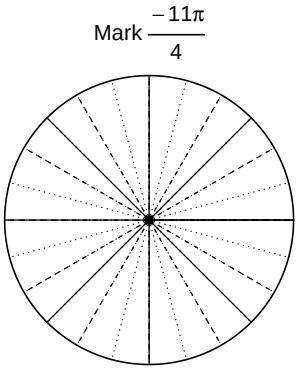
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The angle measure is 4.1 radians. The radius is 45 meters. How long is the arc in meters?

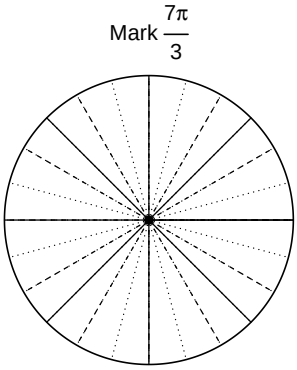


Question 2

Consider angles $\frac{-11\pi}{4}$ and $\frac{7\pi}{3}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\sin\left(\frac{-11\pi}{4}\right)$ and $\cos\left(\frac{7\pi}{3}\right)$ by using a unit circle (provided separately).



Find $\sin(-11\pi/4)$



Find $\cos(7\pi/3)$

Question 3

If $\tan(\theta) = \frac{80}{39}$, and θ is in quadrant III, determine an exact value for $\sin(\theta)$.

Question 4

A mass-spring system oscillates vertically with an amplitude of 5.77 meters, a frequency of 3.19 Hz, and a midline at $y = 7.01$ meters. At $t = 0$, the mass is at the minimum height. Write an equation to model the height (y in meters) as a function of time (t in seconds).

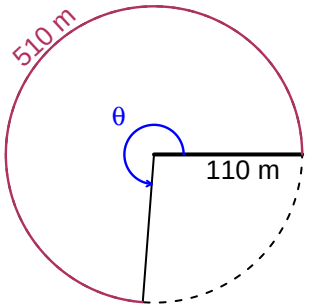
Name: Date:

Trig Final (TEST v643)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

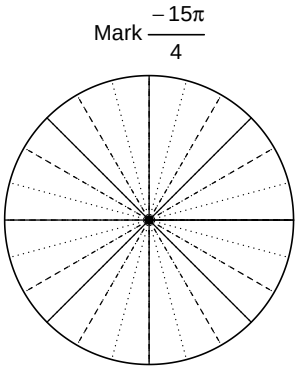
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The arc length is 510 meters. The radius is 110 meters. What is the angle measure in radians?

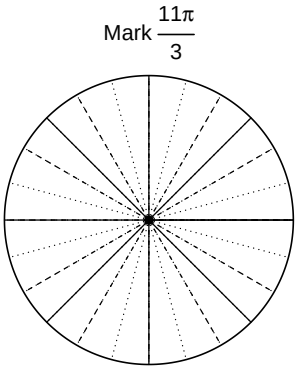


Question 2

Consider angles $\frac{-15\pi}{4}$ and $\frac{11\pi}{3}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\sin\left(\frac{-15\pi}{4}\right)$ and $\cos\left(\frac{11\pi}{3}\right)$ by using a unit circle (provided separately).



Find $\sin(-15\pi/4)$



Find $\cos(11\pi/3)$

Question 3

If $\tan(\theta) = \frac{-72}{65}$, and θ is in quadrant IV, determine an exact value for $\sin(\theta)$.

Question 4

A mass-spring system oscillates vertically with a frequency of 8.73 Hz, a midline at $y = -3.87$ meters, and an amplitude of 7.21 meters. At $t = 0$, the mass is at the midline and moving up. Write an equation to model the height (y in meters) as a function of time (t in seconds).

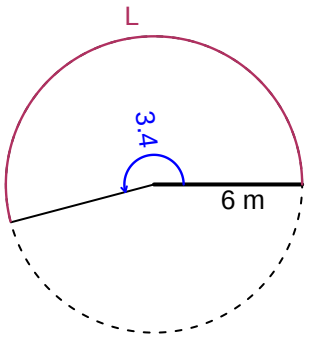
Name: Date:

Trig Final (TEST v644)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

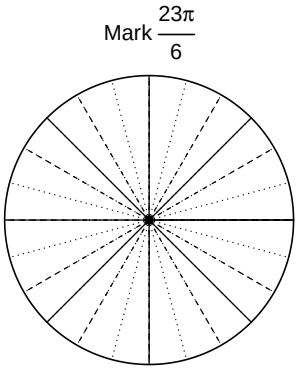
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The angle measure is 3.4 radians. The radius is 6 meters. How long is the arc in meters?

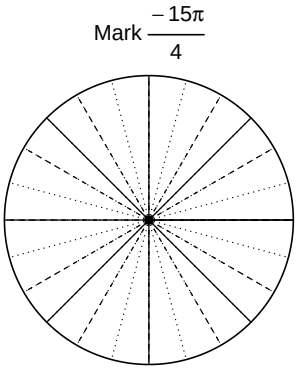


Question 2

Consider angles $\frac{23\pi}{6}$ and $\frac{-15\pi}{4}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\sin\left(\frac{23\pi}{6}\right)$ and $\cos\left(\frac{-15\pi}{4}\right)$ by using a unit circle (provided separately).



Find $\sin(23\pi/6)$



Find $\cos(-15\pi/4)$

Question 3

If $\tan(\theta) = \frac{-77}{36}$, and θ is in quadrant II, determine an exact value for $\cos(\theta)$.

Question 4

A mass-spring system oscillates vertically with an amplitude of 8.53 meters, a frequency of 3.81 Hz, and a midline at $y = -5.72$ meters. At $t = 0$, the mass is at the minimum height. Write an equation to model the height (y in meters) as a function of time (t in seconds).

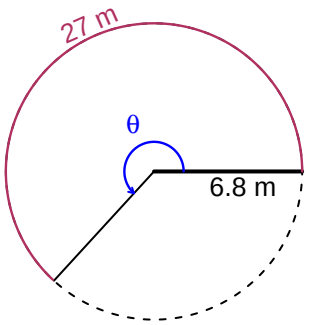
Name: Date:

Trig Final (TEST v645)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

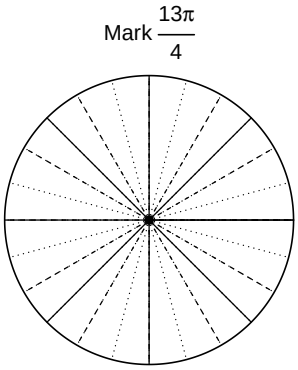
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The arc length is 27 meters. The radius is 6.8 meters. What is the angle measure in radians?

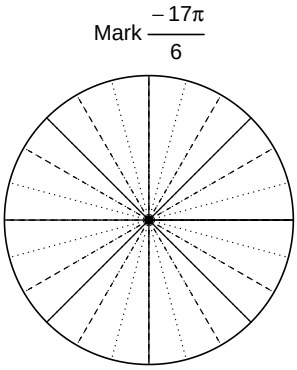


Question 2

Consider angles $\frac{13\pi}{4}$ and $\frac{-17\pi}{6}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\cos\left(\frac{13\pi}{4}\right)$ and $\sin\left(\frac{-17\pi}{6}\right)$ by using a unit circle (provided separately).



Find $\cos(13\pi/4)$



Find $\sin(-17\pi/6)$

Question 3

If $\cos(\theta) = \frac{33}{65}$, and θ is in quadrant IV, determine an exact value for $\sin(\theta)$.

Question 4

A mass-spring system oscillates vertically with a frequency of 6.09 Hz, a midline at $y = -3.76$ meters, and an amplitude of 2.1 meters. At $t = 0$, the mass is at the maximum height. Write an equation to model the height (y in meters) as a function of time (t in seconds).

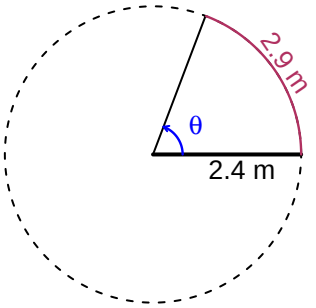
Name: Date:

Trig Final (TEST v646)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

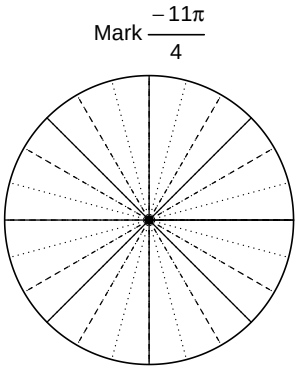
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The arc length is 2.9 meters. The radius is 2.4 meters. What is the angle measure in radians?

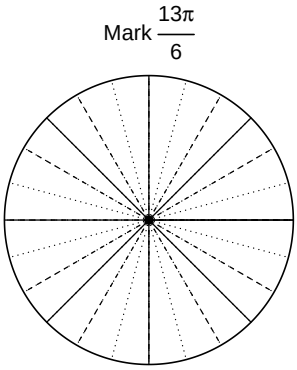


Question 2

Consider angles $\frac{-11\pi}{4}$ and $\frac{13\pi}{6}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\sin\left(\frac{-11\pi}{4}\right)$ and $\cos\left(\frac{13\pi}{6}\right)$ by using a unit circle (provided separately).



Find $\sin(-11\pi/4)$



Find $\cos(13\pi/6)$

Question 3

If $\sin(\theta) = \frac{-21}{29}$, and θ is in quadrant IV, determine an exact value for $\cos(\theta)$.

Question 4

A mass-spring system oscillates vertically with a frequency of 8.53 Hz, a midline at $y = 7.52$ meters, and an amplitude of 4.48 meters. At $t = 0$, the mass is at the midline and moving up. Write an equation to model the height (y in meters) as a function of time (t in seconds).

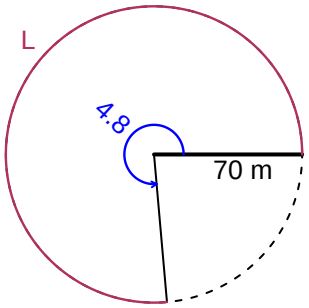
Name: Date:

Trig Final (TEST v647)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

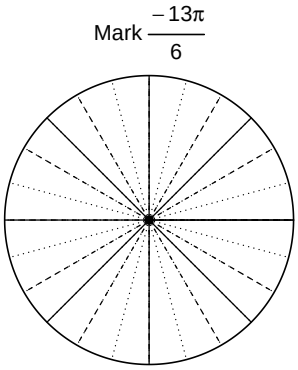
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The angle measure is 4.8 radians. The radius is 70 meters. How long is the arc in meters?

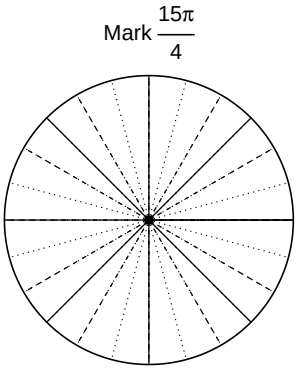


Question 2

Consider angles $\frac{-13\pi}{6}$ and $\frac{15\pi}{4}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\cos\left(\frac{-13\pi}{6}\right)$ and $\sin\left(\frac{15\pi}{4}\right)$ by using a unit circle (provided separately).



Find $\cos(-13\pi/6)$



Find $\sin(15\pi/4)$

Question 3

If $\tan(\theta) = \frac{-45}{28}$, and θ is in quadrant IV, determine an exact value for $\cos(\theta)$.

Question 4

A mass-spring system oscillates vertically with a midline at $y = -7.27$ meters, an amplitude of 3.68 meters, and a frequency of 2.29 Hz. At $t = 0$, the mass is at the midline and moving down. Write an equation to model the height (y in meters) as a function of time (t in seconds).

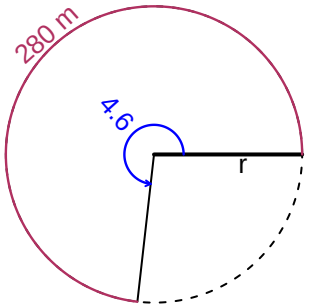
Name: Date:

Trig Final (TEST v648)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

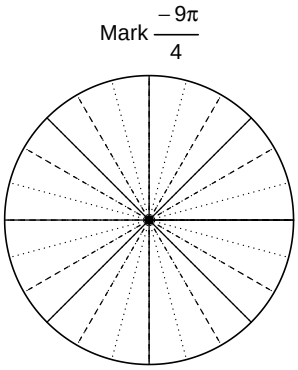
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The arc length is 280 meters. The angle measure is 4.6 radians. How long is the radius in meters?

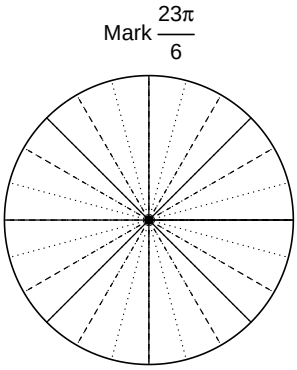


Question 2

Consider angles $\frac{-9\pi}{4}$ and $\frac{23\pi}{6}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\sin\left(\frac{-9\pi}{4}\right)$ and $\cos\left(\frac{23\pi}{6}\right)$ by using a unit circle (provided separately).



Find $\sin(-9\pi/4)$



Find $\cos(23\pi/6)$

Question 3

If $\sin(\theta) = \frac{-21}{29}$, and θ is in quadrant III, determine an exact value for $\cos(\theta)$.

Question 4

A mass-spring system oscillates vertically with an amplitude of 2.4 meters, a frequency of 8.87 Hz, and a midline at $y = 5.64$ meters. At $t = 0$, the mass is at the midline and moving down. Write an equation to model the height (y in meters) as a function of time (t in seconds).

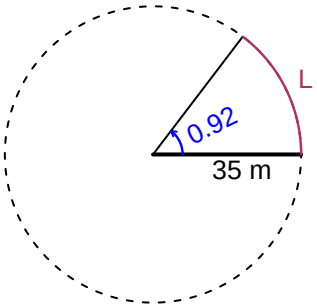
Name: Date:

Trig Final (TEST v649)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

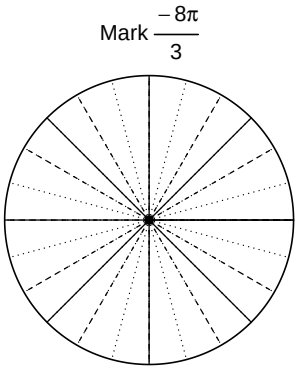
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The angle measure is 0.92 radians. The radius is 35 meters. How long is the arc in meters?

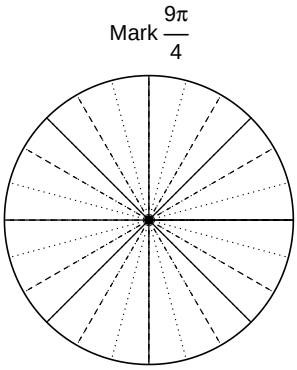


Question 2

Consider angles $\frac{-8\pi}{3}$ and $\frac{9\pi}{4}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\sin\left(\frac{-8\pi}{3}\right)$ and $\cos\left(\frac{9\pi}{4}\right)$ by using a unit circle (provided separately).



Find $\sin(-8\pi/3)$



Find $\cos(9\pi/4)$

Question 3

If $\sin(\theta) = \frac{-72}{97}$, and θ is in quadrant IV, determine an exact value for $\tan(\theta)$.

Question 4

A mass-spring system oscillates vertically with a frequency of 3.77 Hz, an amplitude of 8.78 meters, and a midline at $y = 5.82$ meters. At $t = 0$, the mass is at the maximum height. Write an equation to model the height (y in meters) as a function of time (t in seconds).

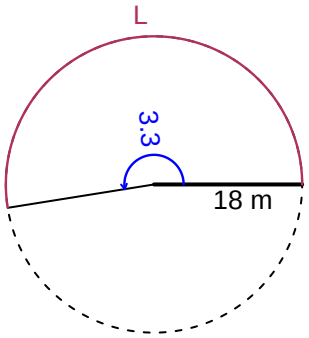
Name: Date:

Trig Final (TEST v650)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

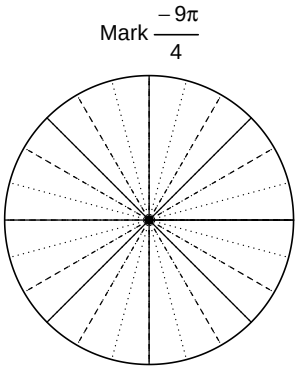
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The angle measure is 3.3 radians. The radius is 18 meters. How long is the arc in meters?

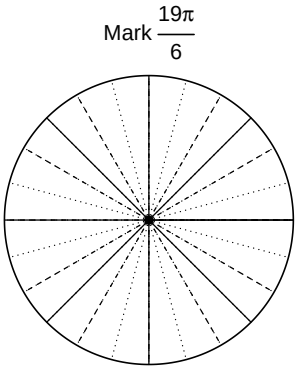


Question 2

Consider angles $\frac{-9\pi}{4}$ and $\frac{19\pi}{6}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\sin\left(\frac{-9\pi}{4}\right)$ and $\cos\left(\frac{19\pi}{6}\right)$ by using a unit circle (provided separately).



Find $\sin(-9\pi/4)$



Find $\cos(19\pi/6)$

Question 3

If $\cos(\theta) = \frac{-8}{17}$, and θ is in quadrant II, determine an exact value for $\tan(\theta)$.

Question 4

A mass-spring system oscillates vertically with a frequency of 6.06 Hz, a midline at $y = -7.47$ meters, and an amplitude of 4.24 meters. At $t = 0$, the mass is at the midline and moving down. Write an equation to model the height (y in meters) as a function of time (t in seconds).

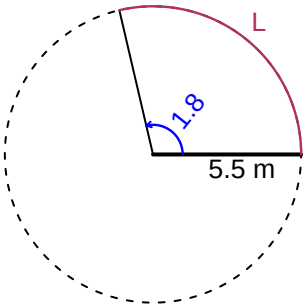
Name: Date:

Trig Final (TEST v651)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

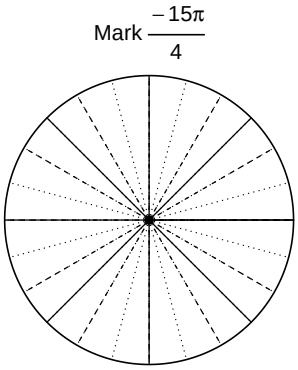
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The radius is 5.5 meters. The angle measure is 1.8 radians. How long is the arc in meters?

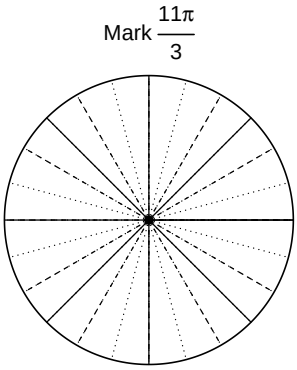


Question 2

Consider angles $\frac{-15\pi}{4}$ and $\frac{11\pi}{3}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\cos\left(\frac{-15\pi}{4}\right)$ and $\sin\left(\frac{11\pi}{3}\right)$ by using a unit circle (provided separately).



Find $\cos(-15\pi/4)$



Find $\sin(11\pi/3)$

Question 3

If $\cos(\theta) = \frac{-39}{89}$, and θ is in quadrant II, determine an exact value for $\tan(\theta)$.

Question 4

A mass-spring system oscillates vertically with an amplitude of 7.74 meters, a midline at $y = -5.64$ meters, and a frequency of 2.24 Hz. At $t = 0$, the mass is at the minimum height. Write an equation to model the height (y in meters) as a function of time (t in seconds).

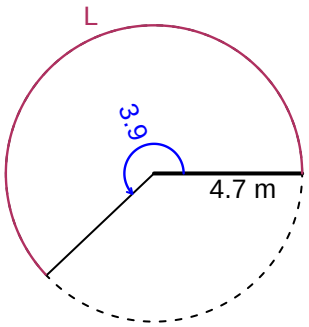
Name: Date:

Trig Final (TEST v652)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

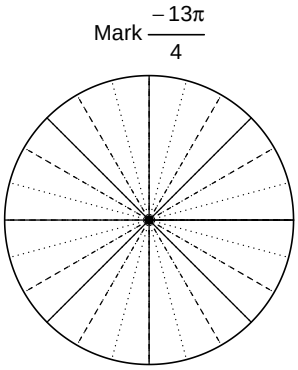
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The angle measure is 3.9 radians. The radius is 4.7 meters. How long is the arc in meters?

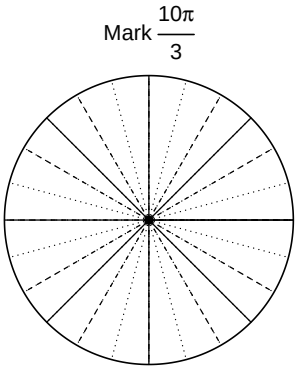


Question 2

Consider angles $\frac{-13\pi}{4}$ and $\frac{10\pi}{3}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\sin\left(\frac{-13\pi}{4}\right)$ and $\cos\left(\frac{10\pi}{3}\right)$ by using a unit circle (provided separately).



Find $\sin(-13\pi/4)$



Find $\cos(10\pi/3)$

Question 3

If $\tan(\theta) = \frac{-80}{39}$, and θ is in quadrant IV, determine an exact value for $\cos(\theta)$.

Question 4

A mass-spring system oscillates vertically with a frequency of 2.63 Hz, a midline at $y = -4.17$ meters, and an amplitude of 7.9 meters. At $t = 0$, the mass is at the maximum height. Write an equation to model the height (y in meters) as a function of time (t in seconds).

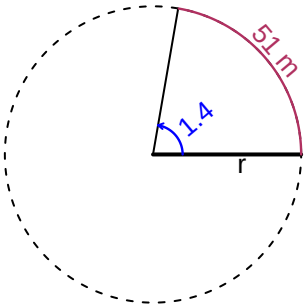
Name: Date:

Trig Final (TEST v653)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

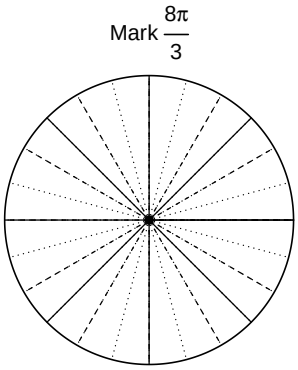
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The arc length is 51 meters. The angle measure is 1.4 radians. How long is the radius in meters?

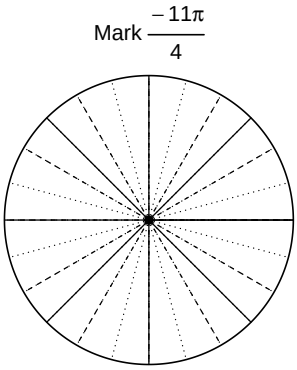


Question 2

Consider angles $\frac{8\pi}{3}$ and $\frac{-11\pi}{4}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\sin\left(\frac{8\pi}{3}\right)$ and $\cos\left(\frac{-11\pi}{4}\right)$ by using a unit circle (provided separately).



Find $\sin(8\pi/3)$



Find $\cos(-11\pi/4)$

Question 3

If $\tan(\theta) = \frac{-77}{36}$, and θ is in quadrant IV, determine an exact value for $\sin(\theta)$.

Question 4

A mass-spring system oscillates vertically with an amplitude of 4.3 meters, a midline at $y = 7.37$ meters, and a frequency of 8.39 Hz. At $t = 0$, the mass is at the midline and moving down. Write an equation to model the height (y in meters) as a function of time (t in seconds).

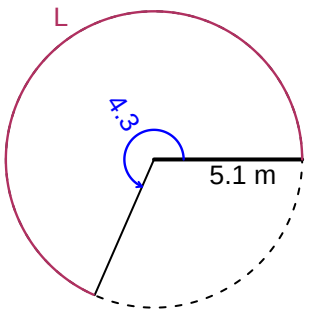
Name: Date:

Trig Final (TEST v654)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

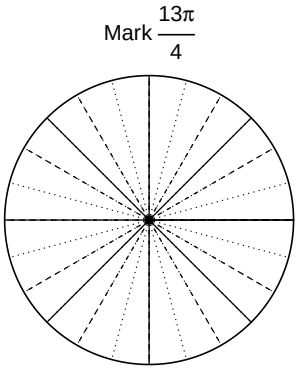
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The radius is 5.1 meters. The angle measure is 4.3 radians. How long is the arc in meters?

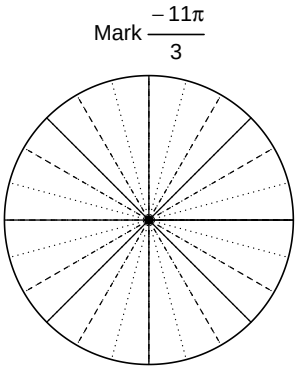


Question 2

Consider angles $\frac{13\pi}{4}$ and $\frac{-11\pi}{3}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\cos\left(\frac{13\pi}{4}\right)$ and $\sin\left(\frac{-11\pi}{3}\right)$ by using a unit circle (provided separately).



Find $\cos(13\pi/4)$



Find $\sin(-11\pi/3)$

Question 3

If $\sin(\theta) = \frac{-63}{65}$, and θ is in quadrant III, determine an exact value for $\cos(\theta)$.

Question 4

A mass-spring system oscillates vertically with a midline at $y = 2.41$ meters, a frequency of 3.44 Hz, and an amplitude of 7.7 meters. At $t = 0$, the mass is at the midline and moving up. Write an equation to model the height (y in meters) as a function of time (t in seconds).

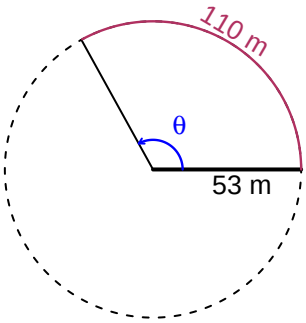
Name: Date:

Trig Final (TEST v655)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

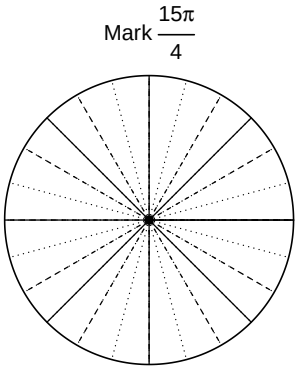
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The arc length is 110 meters. The radius is 53 meters. What is the angle measure in radians?

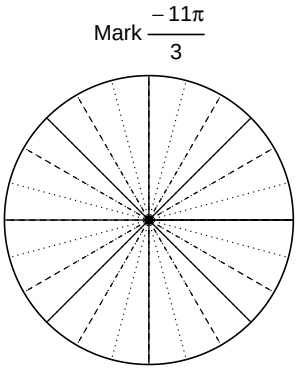


Question 2

Consider angles $\frac{15\pi}{4}$ and $\frac{-11\pi}{3}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\sin\left(\frac{15\pi}{4}\right)$ and $\cos\left(\frac{-11\pi}{3}\right)$ by using a unit circle (provided separately).



Find $\sin(15\pi/4)$



Find $\cos(-11\pi/3)$

Question 3

If $\sin(\theta) = \frac{-15}{17}$, and θ is in quadrant III, determine an exact value for $\tan(\theta)$.

Question 4

A mass-spring system oscillates vertically with an amplitude of 4.96 meters, a frequency of 8.27 Hz, and a midline at $y = -3.61$ meters. At $t = 0$, the mass is at the minimum height. Write an equation to model the height (y in meters) as a function of time (t in seconds).

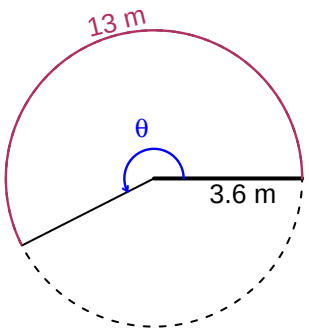
Name: Date:

Trig Final (TEST v656)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

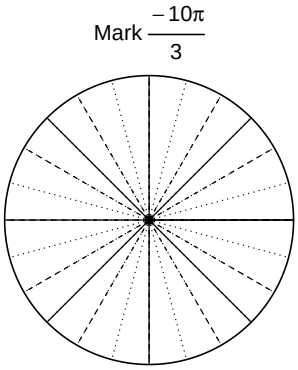
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The arc length is 13 meters. The radius is 3.6 meters. What is the angle measure in radians?

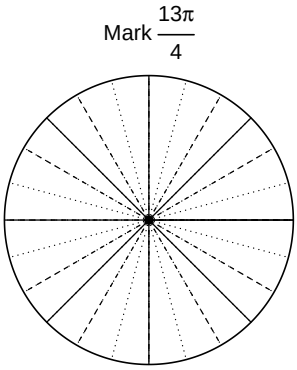


Question 2

Consider angles $\frac{-10\pi}{3}$ and $\frac{13\pi}{4}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\sin\left(\frac{-10\pi}{3}\right)$ and $\cos\left(\frac{13\pi}{4}\right)$ by using a unit circle (provided separately).



Find $\sin(-10\pi/3)$



Find $\cos(13\pi/4)$

Question 3

If $\tan(\theta) = \frac{-45}{28}$, and θ is in quadrant IV, determine an exact value for $\cos(\theta)$.

Question 4

A mass-spring system oscillates vertically with an amplitude of 7.39 meters, a midline at $y = -2.47$ meters, and a frequency of 6.07 Hz. At $t = 0$, the mass is at the midline and moving down. Write an equation to model the height (y in meters) as a function of time (t in seconds).

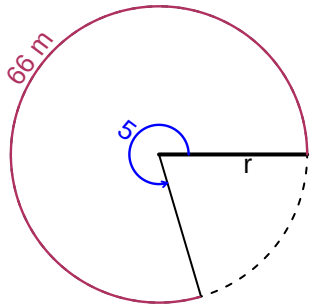
Name: Date:

Trig Final (TEST v657)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

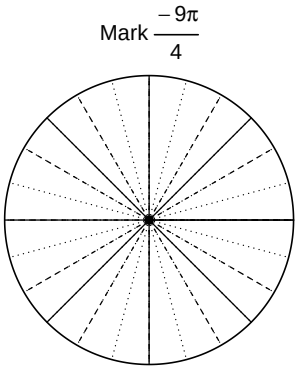
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The angle measure is 5 radians. The arc length is 66 meters. How long is the radius in meters?

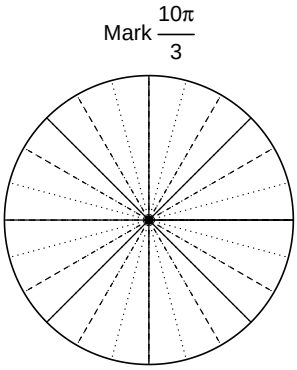


Question 2

Consider angles $\frac{-9\pi}{4}$ and $\frac{10\pi}{3}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\sin\left(\frac{-9\pi}{4}\right)$ and $\cos\left(\frac{10\pi}{3}\right)$ by using a unit circle (provided separately).



Find $\sin(-9\pi/4)$



Find $\cos(10\pi/3)$

Question 3

If $\tan(\theta) = \frac{-60}{11}$, and θ is in quadrant II, determine an exact value for $\cos(\theta)$.

Question 4

A mass-spring system oscillates vertically with a frequency of 8.44 Hz, an amplitude of 7.15 meters, and a midline at $y = -2.59$ meters. At $t = 0$, the mass is at the midline and moving down. Write an equation to model the height (y in meters) as a function of time (t in seconds).

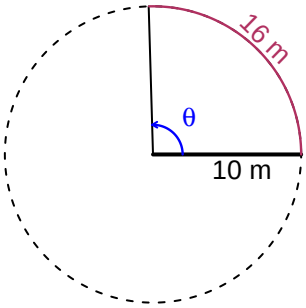
Name: Date:

Trig Final (TEST v658)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

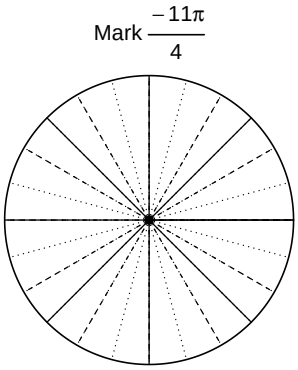
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The arc length is 16 meters. The radius is 10 meters. What is the angle measure in radians?

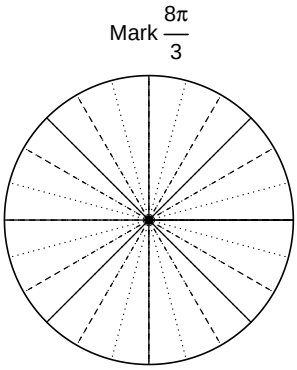


Question 2

Consider angles $\frac{-11\pi}{4}$ and $\frac{8\pi}{3}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\cos\left(\frac{-11\pi}{4}\right)$ and $\sin\left(\frac{8\pi}{3}\right)$ by using a unit circle (provided separately).



Find $\cos(-11\pi/4)$



Find $\sin(8\pi/3)$

Question 3

If $\tan(\theta) = \frac{-63}{16}$, and θ is in quadrant IV, determine an exact value for $\cos(\theta)$.

Question 4

A mass-spring system oscillates vertically with a midline at $y = 2.87$ meters, a frequency of 5.1 Hz, and an amplitude of 6.93 meters. At $t = 0$, the mass is at the midline and moving up. Write an equation to model the height (y in meters) as a function of time (t in seconds).

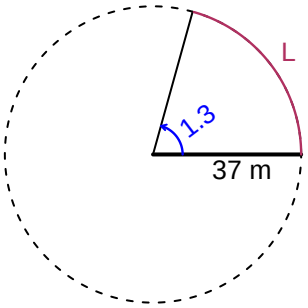
Name: Date:

Trig Final (TEST v659)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

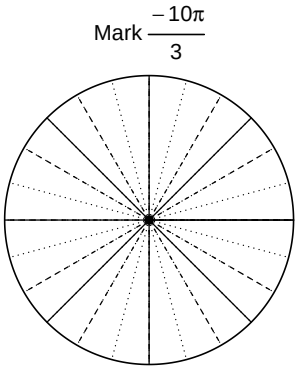
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The radius is 37 meters. The angle measure is 1.3 radians. How long is the arc in meters?

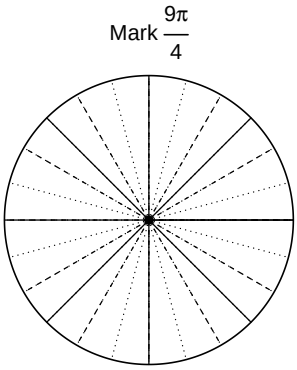


Question 2

Consider angles $\frac{-10\pi}{3}$ and $\frac{9\pi}{4}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\cos\left(\frac{-10\pi}{3}\right)$ and $\sin\left(\frac{9\pi}{4}\right)$ by using a unit circle (provided separately).



Find $\cos(-10\pi/3)$



Find $\sin(9\pi/4)$

Question 3

If $\cos(\theta) = \frac{-11}{61}$, and θ is in quadrant III, determine an exact value for $\sin(\theta)$.

Question 4

A mass-spring system oscillates vertically with a frequency of 8.61 Hz, an amplitude of 7.1 meters, and a midline at $y = 5.71$ meters. At $t = 0$, the mass is at the midline and moving up. Write an equation to model the height (y in meters) as a function of time (t in seconds).

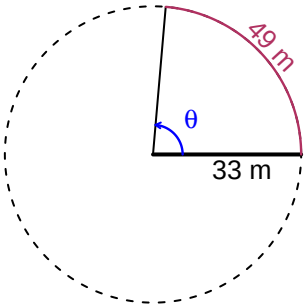
Name: Date:

Trig Final (TEST v660)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

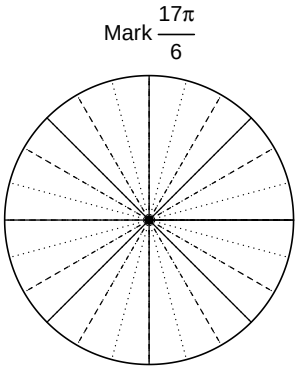
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The radius is 33 meters. The arc length is 49 meters. What is the angle measure in radians?

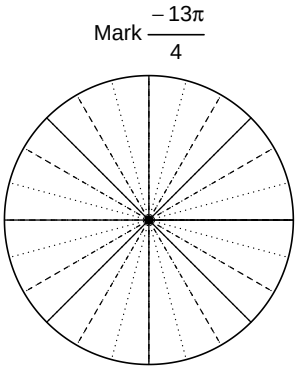


Question 2

Consider angles $\frac{17\pi}{6}$ and $\frac{-13\pi}{4}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\cos\left(\frac{17\pi}{6}\right)$ and $\sin\left(\frac{-13\pi}{4}\right)$ by using a unit circle (provided separately).



Find $\cos(17\pi/6)$



Find $\sin(-13\pi/4)$

Question 3

If $\cos(\theta) = \frac{-5}{13}$, and θ is in quadrant II, determine an exact value for $\tan(\theta)$.

Question 4

A mass-spring system oscillates vertically with an amplitude of 7.53 meters, a midline at $y = 2.29$ meters, and a frequency of 6.08 Hz. At $t = 0$, the mass is at the maximum height. Write an equation to model the height (y in meters) as a function of time (t in seconds).

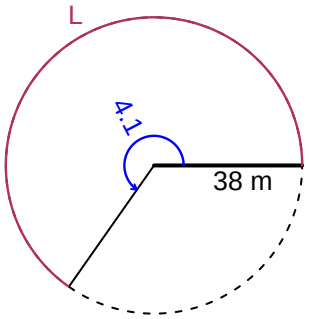
Name: Date:

Trig Final (TEST v661)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

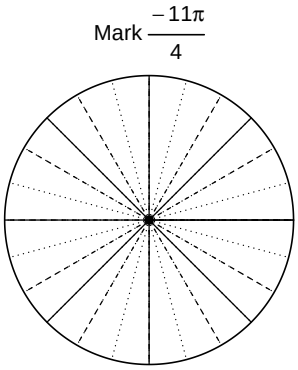
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The angle measure is 4.1 radians. The radius is 38 meters. How long is the arc in meters?

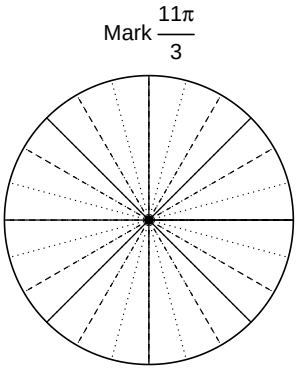


Question 2

Consider angles $\frac{-11\pi}{4}$ and $\frac{11\pi}{3}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\sin\left(\frac{-11\pi}{4}\right)$ and $\cos\left(\frac{11\pi}{3}\right)$ by using a unit circle (provided separately).



Find $\sin(-11\pi/4)$



Find $\cos(11\pi/3)$

Question 3

If $\sin(\theta) = \frac{60}{61}$, and θ is in quadrant II, determine an exact value for $\cos(\theta)$.

Question 4

A mass-spring system oscillates vertically with an amplitude of 7.01 meters, a midline at $y = -8.11$ meters, and a frequency of 3.44 Hz. At $t = 0$, the mass is at the maximum height. Write an equation to model the height (y in meters) as a function of time (t in seconds).

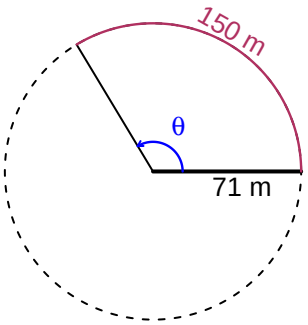
Name: Date:

Trig Final (TEST v662)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

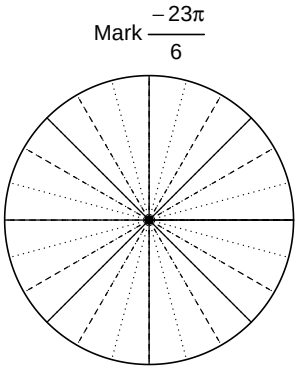
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The arc length is 150 meters. The radius is 71 meters. What is the angle measure in radians?

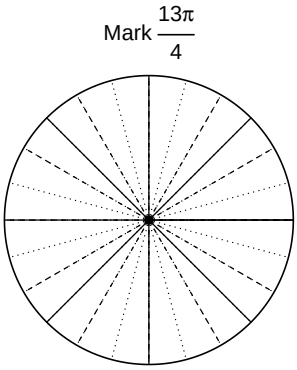


Question 2

Consider angles $\frac{-23\pi}{6}$ and $\frac{13\pi}{4}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\cos\left(\frac{-23\pi}{6}\right)$ and $\sin\left(\frac{13\pi}{4}\right)$ by using a unit circle (provided separately).



Find $\cos(-23\pi/6)$



Find $\sin(13\pi/4)$

Question 3

If $\tan(\theta) = \frac{-63}{16}$, and θ is in quadrant IV, determine an exact value for $\sin(\theta)$.

Question 4

A mass-spring system oscillates vertically with an amplitude of 3.18 meters, a frequency of 4.78 Hz, and a midline at $y = -5.89$ meters. At $t = 0$, the mass is at the minimum height. Write an equation to model the height (y in meters) as a function of time (t in seconds).

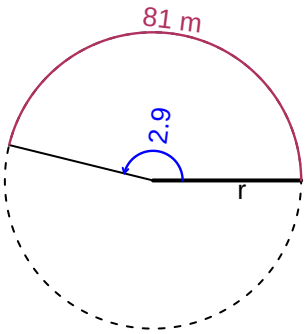
Name: Date:

Trig Final (TEST v663)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

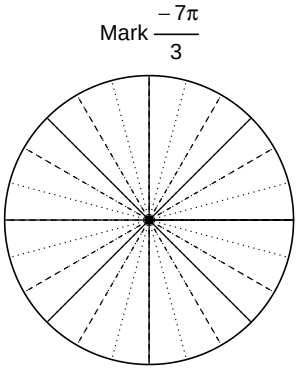
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The angle measure is 2.9 radians. The arc length is 81 meters. How long is the radius in meters?

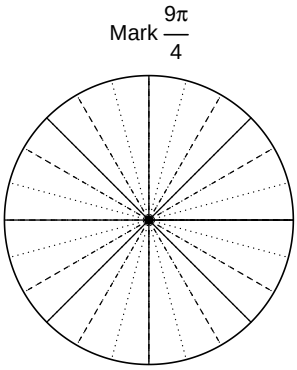


Question 2

Consider angles $\frac{-7\pi}{3}$ and $\frac{9\pi}{4}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\sin\left(\frac{-7\pi}{3}\right)$ and $\cos\left(\frac{9\pi}{4}\right)$ by using a unit circle (provided separately).



Find $\sin(-7\pi/3)$



Find $\cos(9\pi/4)$

Question 3

If $\tan(\theta) = \frac{-72}{65}$, and θ is in quadrant IV, determine an exact value for $\cos(\theta)$.

Question 4

A mass-spring system oscillates vertically with a midline at $y = 7.85$ meters, a frequency of 2.34 Hz, and an amplitude of 6.12 meters. At $t = 0$, the mass is at the minimum height. Write an equation to model the height (y in meters) as a function of time (t in seconds).

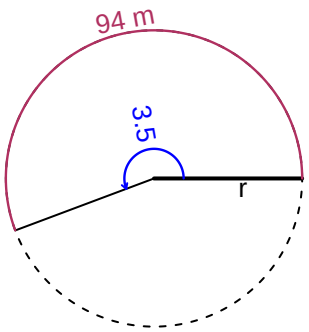
Name: Date:

Trig Final (TEST v664)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

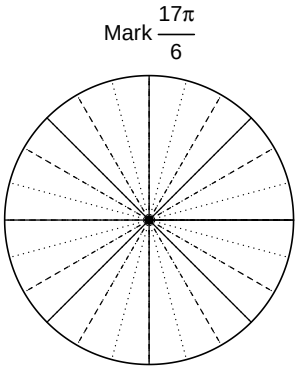
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The arc length is 94 meters. The angle measure is 3.5 radians. How long is the radius in meters?

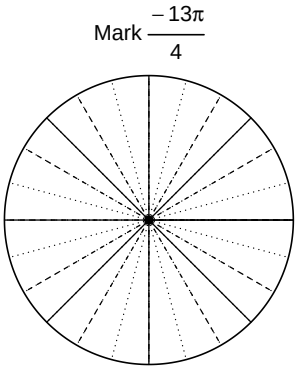


Question 2

Consider angles $\frac{17\pi}{6}$ and $\frac{-13\pi}{4}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\cos\left(\frac{17\pi}{6}\right)$ and $\sin\left(\frac{-13\pi}{4}\right)$ by using a unit circle (provided separately).



Find $\cos(17\pi/6)$



Find $\sin(-13\pi/4)$

Question 3

If $\tan(\theta) = \frac{60}{11}$, and θ is in quadrant III, determine an exact value for $\sin(\theta)$.

Question 4

A mass-spring system oscillates vertically with a frequency of 4.69 Hz, a midline at $y = 7.5$ meters, and an amplitude of 2.25 meters. At $t = 0$, the mass is at the minimum height. Write an equation to model the height (y in meters) as a function of time (t in seconds).

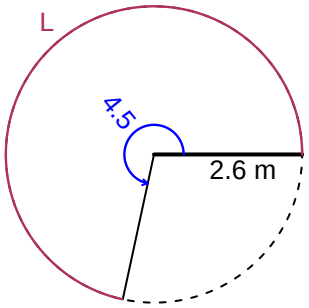
Name: Date:

Trig Final (TEST v665)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

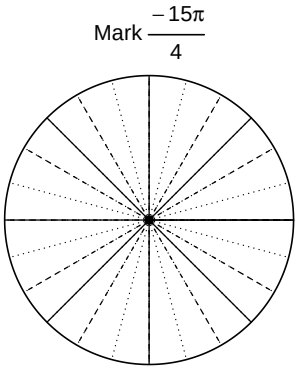
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The radius is 2.6 meters. The angle measure is 4.5 radians. How long is the arc in meters?

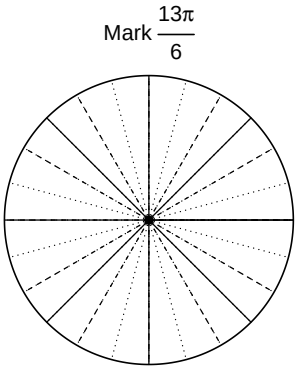


Question 2

Consider angles $\frac{-15\pi}{4}$ and $\frac{13\pi}{6}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\cos\left(\frac{-15\pi}{4}\right)$ and $\sin\left(\frac{13\pi}{6}\right)$ by using a unit circle (provided separately).



Find $\cos(-15\pi/4)$



Find $\sin(13\pi/6)$

Question 3

If $\tan(\theta) = \frac{15}{8}$, and θ is in quadrant III, determine an exact value for $\sin(\theta)$.

Question 4

A mass-spring system oscillates vertically with a midline at $y = 3.65$ meters, a frequency of 8.14 Hz, and an amplitude of 6.41 meters. At $t = 0$, the mass is at the midline and moving down. Write an equation to model the height (y in meters) as a function of time (t in seconds).

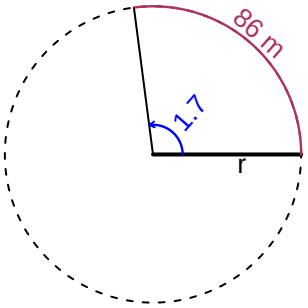
Name: Date:

Trig Final (TEST v666)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

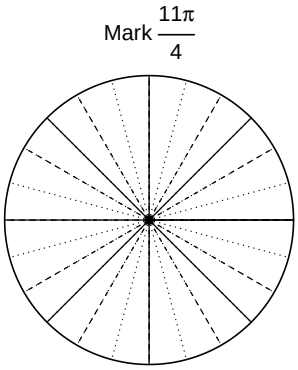
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The angle measure is 1.7 radians. The arc length is 86 meters. How long is the radius in meters?

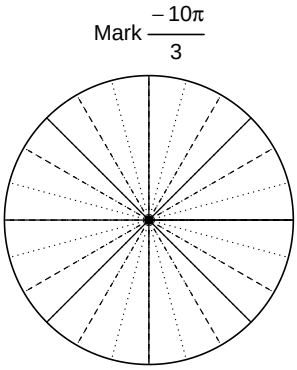


Question 2

Consider angles $\frac{11\pi}{4}$ and $\frac{-10\pi}{3}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\cos\left(\frac{11\pi}{4}\right)$ and $\sin\left(\frac{-10\pi}{3}\right)$ by using a unit circle (provided separately).



Find $\cos(11\pi/4)$



Find $\sin(-10\pi/3)$

Question 3

If $\cos(\theta) = \frac{-12}{37}$, and θ is in quadrant II, determine an exact value for $\tan(\theta)$.

Question 4

A mass-spring system oscillates vertically with an amplitude of 7.64 meters, a frequency of 3.87 Hz, and a midline at $y = 2.3$ meters. At $t = 0$, the mass is at the maximum height. Write an equation to model the height (y in meters) as a function of time (t in seconds).

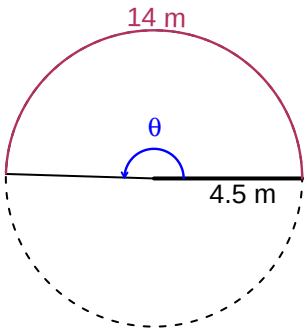
Name: Date:

Trig Final (TEST v667)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

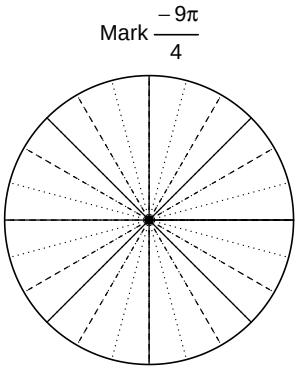
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The arc length is 14 meters. The radius is 4.5 meters. What is the angle measure in radians?

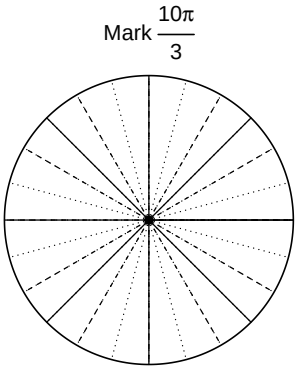


Question 2

Consider angles $\frac{-9\pi}{4}$ and $\frac{10\pi}{3}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\sin\left(\frac{-9\pi}{4}\right)$ and $\cos\left(\frac{10\pi}{3}\right)$ by using a unit circle (provided separately).



Find $\sin(-9\pi/4)$



Find $\cos(10\pi/3)$

Question 3

If $\sin(\theta) = \frac{-40}{41}$, and θ is in quadrant III, determine an exact value for $\tan(\theta)$.

Question 4

A mass-spring system oscillates vertically with a midline at $y = -4.96$ meters, an amplitude of 8.51 meters, and a frequency of 6.19 Hz. At $t = 0$, the mass is at the minimum height. Write an equation to model the height (y in meters) as a function of time (t in seconds).

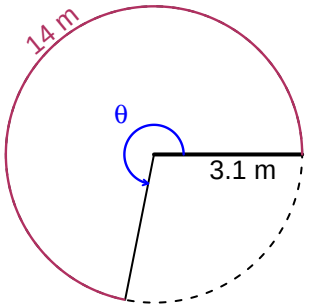
Name: Date:

Trig Final (TEST v668)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

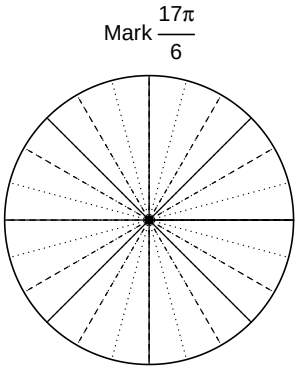
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The radius is 3.1 meters. The arc length is 14 meters. What is the angle measure in radians?

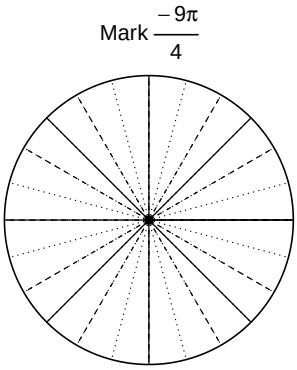


Question 2

Consider angles $\frac{17\pi}{6}$ and $\frac{-9\pi}{4}$. For each angle, use a spiral with an arm head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\sin\left(\frac{17\pi}{6}\right)$ and $\cos\left(\frac{-9\pi}{4}\right)$ by using a unit circle (provided separately).



Find $\sin(17\pi/6)$



Find $\cos(-9\pi/4)$

Question 3

If $\sin(\theta) = \frac{12}{13}$, and θ is in quadrant II, determine an exact value for $\tan(\theta)$.

Question 4

A mass-spring system oscillates vertically with an amplitude of 5.21 meters, a frequency of 2.59 Hz, and a midline at $y = -7.5$ meters. At $t = 0$, the mass is at the midline and moving down. Write an equation to model the height (y in meters) as a function of time (t in seconds).

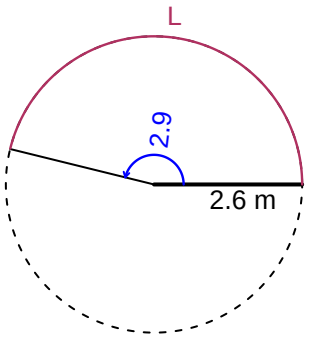
Name: Date:

Trig Final (TEST v669)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

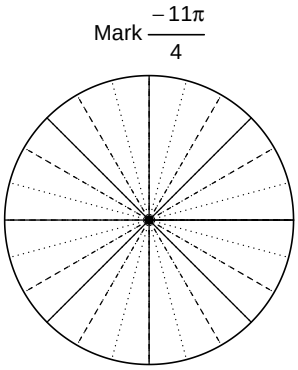
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The radius is 2.6 meters. The angle measure is 2.9 radians. How long is the arc in meters?

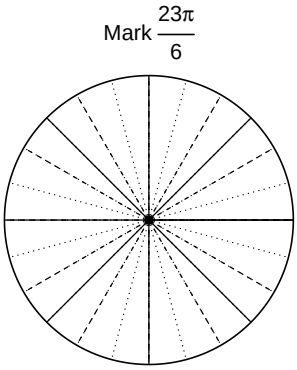


Question 2

Consider angles $\frac{-11\pi}{4}$ and $\frac{23\pi}{6}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\cos\left(\frac{-11\pi}{4}\right)$ and $\sin\left(\frac{23\pi}{6}\right)$ by using a unit circle (provided separately).



Find $\cos(-11\pi/4)$



Find $\sin(23\pi/6)$

Question 3

If $\cos(\theta) = \frac{-8}{17}$, and θ is in quadrant II, determine an exact value for $\tan(\theta)$.

Question 4

A mass-spring system oscillates vertically with a midline at $y = 4.36$ meters, a frequency of 6.69 Hz, and an amplitude of 2.91 meters. At $t = 0$, the mass is at the midline and moving up. Write an equation to model the height (y in meters) as a function of time (t in seconds).

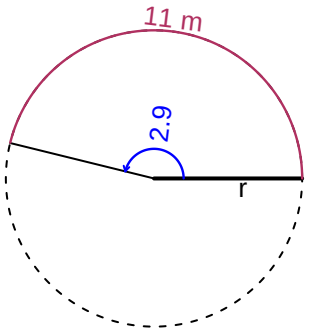
Name: Date:

Trig Final (TEST v670)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

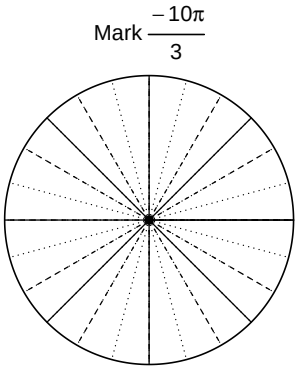
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The angle measure is 2.9 radians. The arc length is 11 meters. How long is the radius in meters?

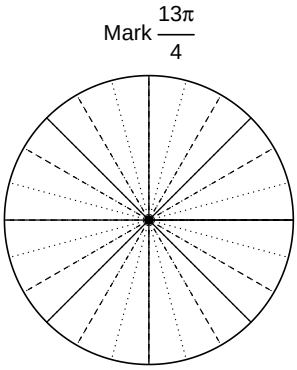


Question 2

Consider angles $\frac{-10\pi}{3}$ and $\frac{13\pi}{4}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\sin\left(\frac{-10\pi}{3}\right)$ and $\cos\left(\frac{13\pi}{4}\right)$ by using a unit circle (provided separately).



Find $\sin(-10\pi/3)$



Find $\cos(13\pi/4)$

Question 3

If $\sin(\theta) = \frac{-60}{61}$, and θ is in quadrant IV, determine an exact value for $\tan(\theta)$.

Question 4

A mass-spring system oscillates vertically with an amplitude of 6.29 meters, a midline at $y = -4.89$ meters, and a frequency of 8.29 Hz. At $t = 0$, the mass is at the maximum height. Write an equation to model the height (y in meters) as a function of time (t in seconds).

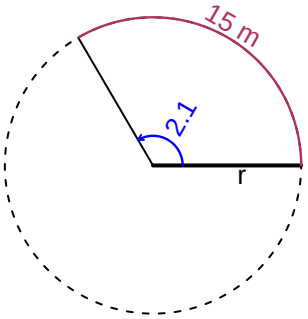
Name: Date:

Trig Final (TEST v671)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

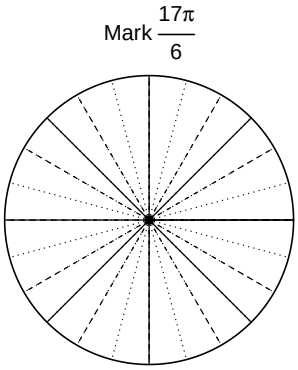
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The arc length is 15 meters. The angle measure is 2.1 radians. How long is the radius in meters?

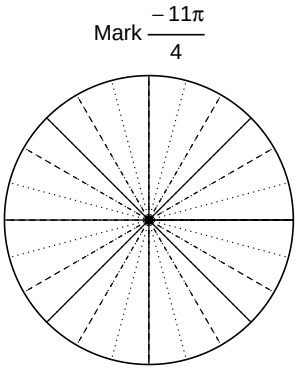


Question 2

Consider angles $\frac{17\pi}{6}$ and $\frac{-11\pi}{4}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\cos\left(\frac{17\pi}{6}\right)$ and $\sin\left(\frac{-11\pi}{4}\right)$ by using a unit circle (provided separately).



Find $\cos(17\pi/6)$



Find $\sin(-11\pi/4)$

Question 3

If $\cos(\theta) = \frac{5}{13}$, and θ is in quadrant IV, determine an exact value for $\sin(\theta)$.

Question 4

A mass-spring system oscillates vertically with an amplitude of 5.19 meters, a frequency of 3.38 Hz, and a midline at $y = -6.8$ meters. At $t = 0$, the mass is at the midline and moving down. Write an equation to model the height (y in meters) as a function of time (t in seconds).

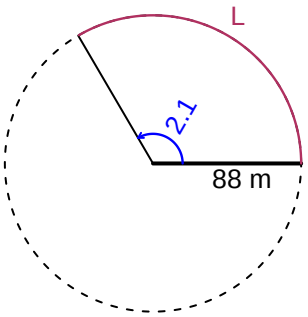
Name: Date:

Trig Final (TEST v672)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

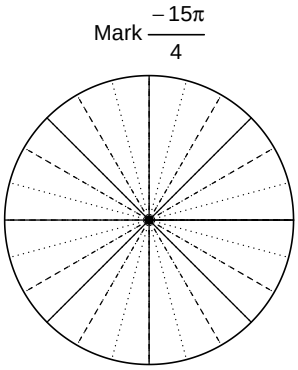
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The radius is 88 meters. The angle measure is 2.1 radians. How long is the arc in meters?

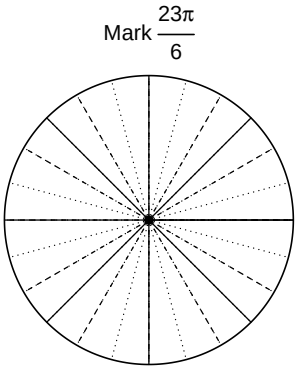


Question 2

Consider angles $\frac{-15\pi}{4}$ and $\frac{23\pi}{6}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\cos\left(\frac{-15\pi}{4}\right)$ and $\sin\left(\frac{23\pi}{6}\right)$ by using a unit circle (provided separately).



Find $\cos(-15\pi/4)$



Find $\sin(23\pi/6)$

Question 3

If $\sin(\theta) = \frac{-21}{29}$, and θ is in quadrant IV, determine an exact value for $\cos(\theta)$.

Question 4

A mass-spring system oscillates vertically with a frequency of 4.99 Hz, a midline at $y = 2.77$ meters, and an amplitude of 7.11 meters. At $t = 0$, the mass is at the midline and moving up. Write an equation to model the height (y in meters) as a function of time (t in seconds).

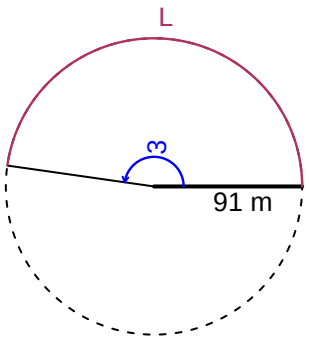
Name: Date:

Trig Final (TEST v673)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

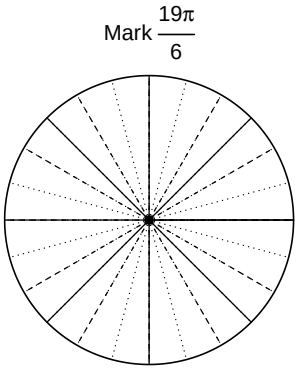
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The radius is 91 meters. The angle measure is 3 radians. How long is the arc in meters?

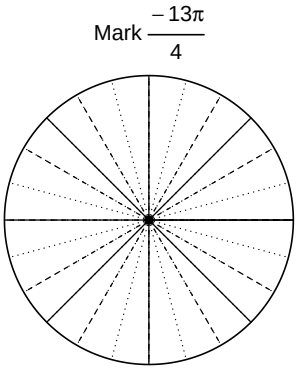


Question 2

Consider angles $\frac{19\pi}{6}$ and $\frac{-13\pi}{4}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\cos\left(\frac{19\pi}{6}\right)$ and $\sin\left(\frac{-13\pi}{4}\right)$ by using a unit circle (provided separately).



Find $\cos(19\pi/6)$



Find $\sin(-13\pi/4)$

Question 3

If $\sin(\theta) = \frac{-24}{25}$, and θ is in quadrant III, determine an exact value for $\tan(\theta)$.

Question 4

A mass-spring system oscillates vertically with a midline at $y = 3.15$ meters, an amplitude of 5.37 meters, and a frequency of 2.02 Hz. At $t = 0$, the mass is at the maximum height. Write an equation to model the height (y in meters) as a function of time (t in seconds).

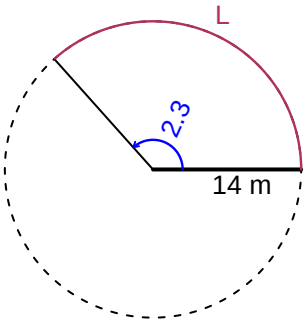
Name: Date:

Trig Final (TEST v674)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

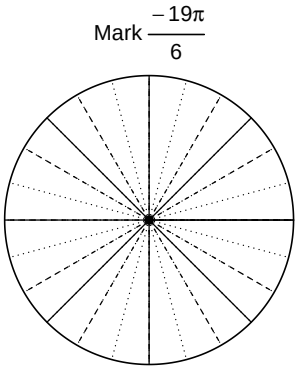
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The angle measure is 2.3 radians. The radius is 14 meters. How long is the arc in meters?

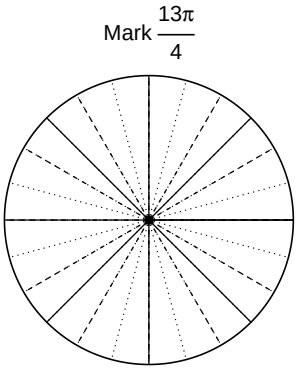


Question 2

Consider angles $\frac{-19\pi}{6}$ and $\frac{13\pi}{4}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\cos\left(\frac{-19\pi}{6}\right)$ and $\sin\left(\frac{13\pi}{4}\right)$ by using a unit circle (provided separately).



Find $\cos(-19\pi/6)$



Find $\sin(13\pi/4)$

Question 3

If $\tan(\theta) = \frac{-40}{9}$, and θ is in quadrant II, determine an exact value for $\sin(\theta)$.

Question 4

A mass-spring system oscillates vertically with a frequency of 2.19 Hz, a midline at $y = -4.66$ meters, and an amplitude of 8.88 meters. At $t = 0$, the mass is at the midline and moving down. Write an equation to model the height (y in meters) as a function of time (t in seconds).

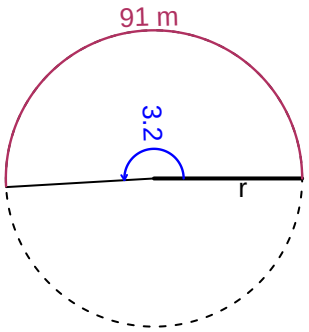
Name: Date:

Trig Final (TEST v675)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

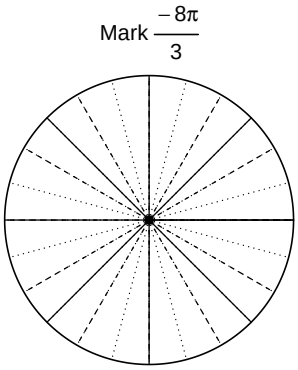
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The angle measure is 3.2 radians. The arc length is 91 meters. How long is the radius in meters?

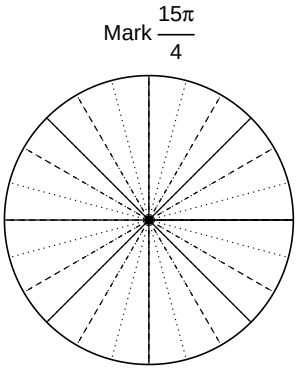


Question 2

Consider angles $\frac{-8\pi}{3}$ and $\frac{15\pi}{4}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\sin\left(\frac{-8\pi}{3}\right)$ and $\cos\left(\frac{15\pi}{4}\right)$ by using a unit circle (provided separately).



Find $\sin(-8\pi/3)$



Find $\cos(15\pi/4)$

Question 3

If $\cos(\theta) = \frac{65}{97}$, and θ is in quadrant IV, determine an exact value for $\tan(\theta)$.

Question 4

A mass-spring system oscillates vertically with a midline at $y = 5.36$ meters, an amplitude of 4 meters, and a frequency of 7.16 Hz. At $t = 0$, the mass is at the minimum height. Write an equation to model the height (y in meters) as a function of time (t in seconds).

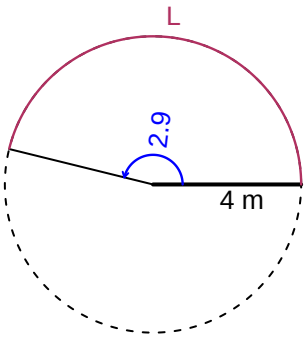
Name: Date:

Trig Final (TEST v676)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

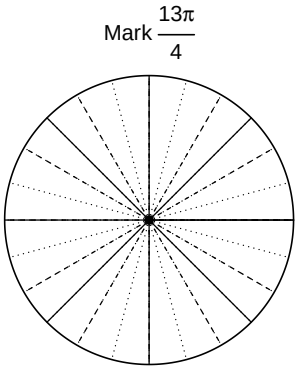
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The angle measure is 2.9 radians. The radius is 4 meters. How long is the arc in meters?

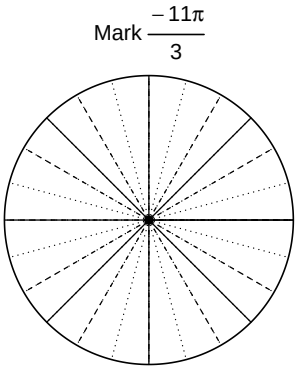


Question 2

Consider angles $\frac{13\pi}{4}$ and $\frac{-11\pi}{3}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\cos\left(\frac{13\pi}{4}\right)$ and $\sin\left(\frac{-11\pi}{3}\right)$ by using a unit circle (provided separately).



Find $\cos(13\pi/4)$



Find $\sin(-11\pi/3)$

Question 3

If $\sin(\theta) = \frac{-60}{61}$, and θ is in quadrant III, determine an exact value for $\tan(\theta)$.

Question 4

A mass-spring system oscillates vertically with a midline at $y = -7.99$ meters, a frequency of 6.22 Hz, and an amplitude of 4.61 meters. At $t = 0$, the mass is at the maximum height. Write an equation to model the height (y in meters) as a function of time (t in seconds).

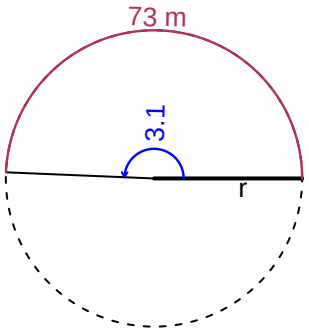
Name: Date:

Trig Final (TEST v677)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

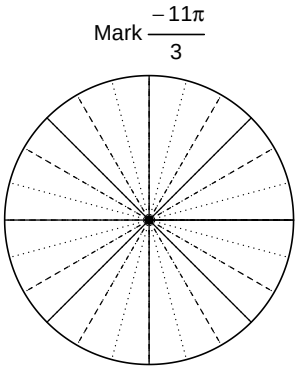
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The arc length is 73 meters. The angle measure is 3.1 radians. How long is the radius in meters?

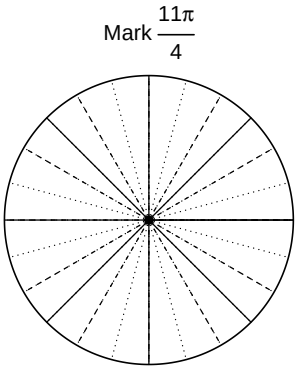


Question 2

Consider angles $\frac{-11\pi}{3}$ and $\frac{11\pi}{4}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\sin\left(\frac{-11\pi}{3}\right)$ and $\cos\left(\frac{11\pi}{4}\right)$ by using a unit circle (provided separately).



Find $\sin(-11\pi/3)$



Find $\cos(11\pi/4)$

Question 3

If $\cos(\theta) = \frac{-8}{17}$, and θ is in quadrant III, determine an exact value for $\tan(\theta)$.

Question 4

A mass-spring system oscillates vertically with a midline at $y = 8.13$ meters, a frequency of 6.62 Hz, and an amplitude of 3.41 meters. At $t = 0$, the mass is at the minimum height. Write an equation to model the height (y in meters) as a function of time (t in seconds).

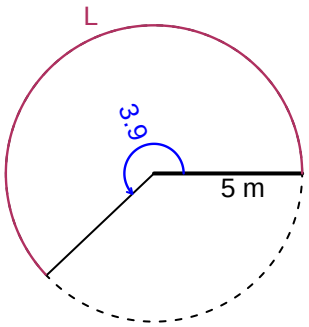
Name: Date:

Trig Final (TEST v678)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

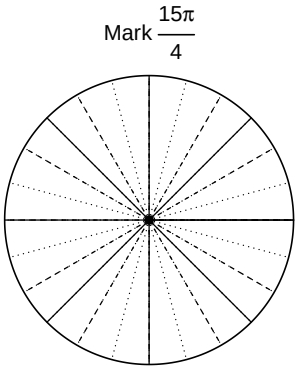
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The radius is 5 meters. The angle measure is 3.9 radians. How long is the arc in meters?

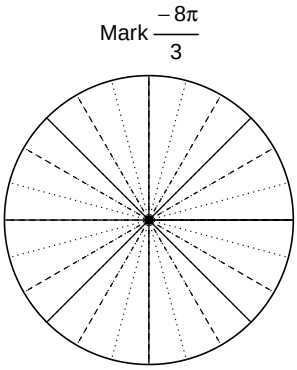


Question 2

Consider angles $\frac{15\pi}{4}$ and $\frac{-8\pi}{3}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\cos\left(\frac{15\pi}{4}\right)$ and $\sin\left(\frac{-8\pi}{3}\right)$ by using a unit circle (provided separately).



Find $\cos(15\pi/4)$



Find $\sin(-8\pi/3)$

Question 3

If $\sin(\theta) = \frac{-60}{61}$, and θ is in quadrant III, determine an exact value for $\cos(\theta)$.

Question 4

A mass-spring system oscillates vertically with a midline at $y = -3.71$ meters, an amplitude of 5.65 meters, and a frequency of 7.47 Hz. At $t = 0$, the mass is at the midline and moving up. Write an equation to model the height (y in meters) as a function of time (t in seconds).

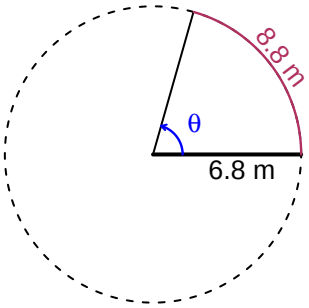
Name: Date:

Trig Final (TEST v679)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

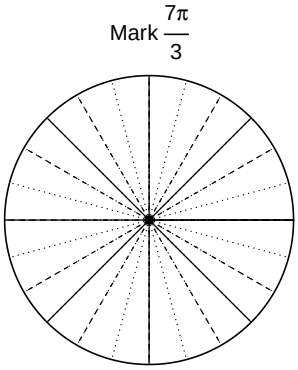
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The arc length is 8.8 meters. The radius is 6.8 meters. What is the angle measure in radians?

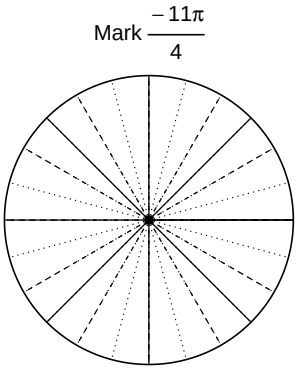


Question 2

Consider angles $\frac{7\pi}{3}$ and $\frac{-11\pi}{4}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\sin\left(\frac{7\pi}{3}\right)$ and $\cos\left(\frac{-11\pi}{4}\right)$ by using a unit circle (provided separately).



Find $\sin(7\pi/3)$



Find $\cos(-11\pi/4)$

Question 3

If $\sin(\theta) = \frac{-45}{53}$, and θ is in quadrant III, determine an exact value for $\tan(\theta)$.

Question 4

A mass-spring system oscillates vertically with a frequency of 7.4 Hz, an amplitude of 4.65 meters, and a midline at $y = 3.09$ meters. At $t = 0$, the mass is at the midline and moving up. Write an equation to model the height (y in meters) as a function of time (t in seconds).

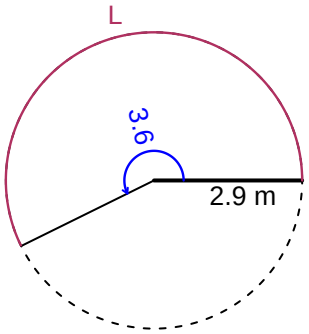
Name: Date:

Trig Final (TEST v680)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

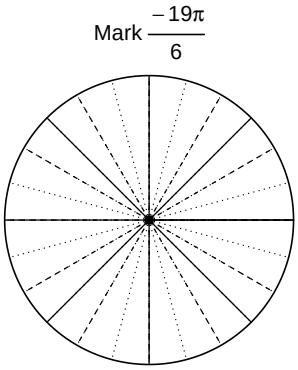
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The radius is 2.9 meters. The angle measure is 3.6 radians. How long is the arc in meters?

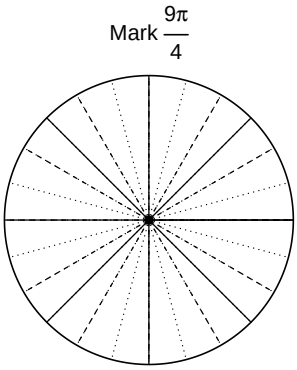


Question 2

Consider angles $\frac{-19\pi}{6}$ and $\frac{9\pi}{4}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\sin\left(\frac{-19\pi}{6}\right)$ and $\cos\left(\frac{9\pi}{4}\right)$ by using a unit circle (provided separately).



Find $\sin(-19\pi/6)$



Find $\cos(9\pi/4)$

Question 3

If $\sin(\theta) = \frac{56}{65}$, and θ is in quadrant II, determine an exact value for $\cos(\theta)$.

Question 4

A mass-spring system oscillates vertically with an amplitude of 7.61 meters, a midline at $y = 4.31$ meters, and a frequency of 8.88 Hz. At $t = 0$, the mass is at the midline and moving up. Write an equation to model the height (y in meters) as a function of time (t in seconds).

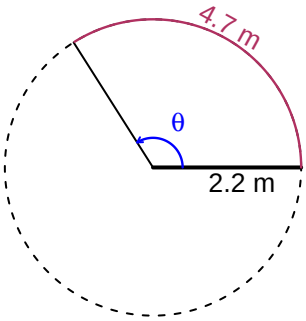
Name: Date:

Trig Final (TEST v681)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

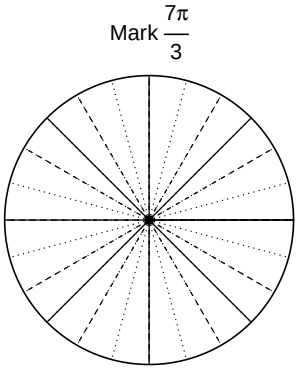
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The arc length is 4.7 meters. The radius is 2.2 meters. What is the angle measure in radians?

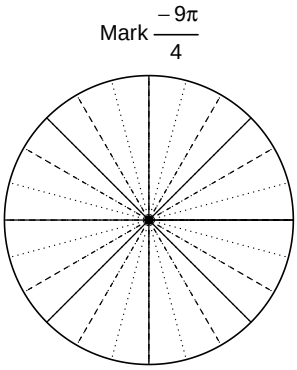


Question 2

Consider angles $\frac{7\pi}{3}$ and $\frac{-9\pi}{4}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\sin\left(\frac{7\pi}{3}\right)$ and $\cos\left(\frac{-9\pi}{4}\right)$ by using a unit circle (provided separately).



Find $\sin(7\pi/3)$



Find $\cos(-9\pi/4)$

Question 3

If $\sin(\theta) = \frac{-60}{61}$, and θ is in quadrant III, determine an exact value for $\cos(\theta)$.

Question 4

A mass-spring system oscillates vertically with a midline at $y = 8.73$ meters, a frequency of 4.3 Hz, and an amplitude of 7.44 meters. At $t = 0$, the mass is at the minimum height. Write an equation to model the height (y in meters) as a function of time (t in seconds).

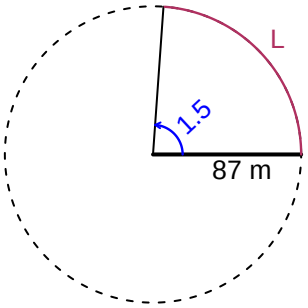
Name: Date:

Trig Final (TEST v682)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

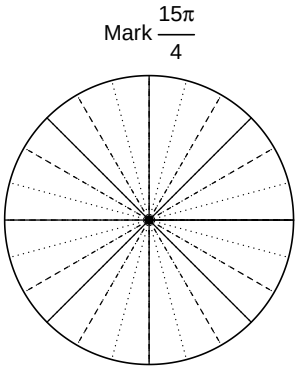
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The angle measure is 1.5 radians. The radius is 87 meters. How long is the arc in meters?

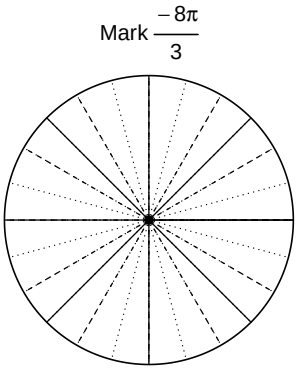


Question 2

Consider angles $\frac{15\pi}{4}$ and $\frac{-8\pi}{3}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\cos\left(\frac{15\pi}{4}\right)$ and $\sin\left(\frac{-8\pi}{3}\right)$ by using a unit circle (provided separately).



Find $\cos(15\pi/4)$



Find $\sin(-8\pi/3)$

Question 3

If $\sin(\theta) = \frac{-21}{29}$, and θ is in quadrant III, determine an exact value for $\tan(\theta)$.

Question 4

A mass-spring system oscillates vertically with an amplitude of 8.02 meters, a midline at $y = -4.84$ meters, and a frequency of 3.8 Hz. At $t = 0$, the mass is at the minimum height. Write an equation to model the height (y in meters) as a function of time (t in seconds).

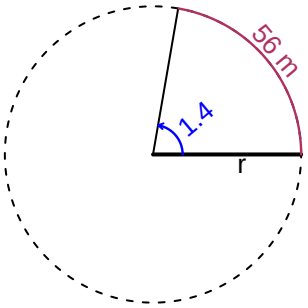
Name: Date:

Trig Final (TEST v683)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

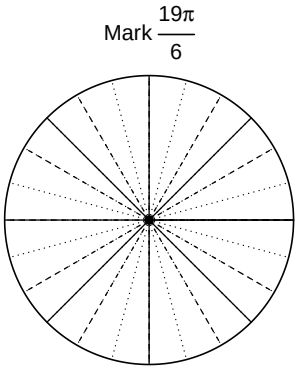
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The angle measure is 1.4 radians. The arc length is 56 meters. How long is the radius in meters?

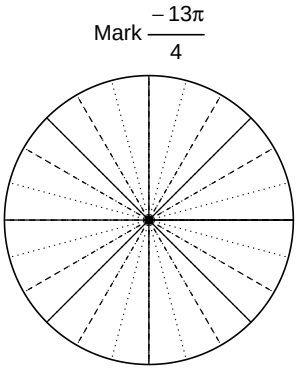


Question 2

Consider angles $\frac{19\pi}{6}$ and $\frac{-13\pi}{4}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\cos\left(\frac{19\pi}{6}\right)$ and $\sin\left(\frac{-13\pi}{4}\right)$ by using a unit circle (provided separately).



Find $\cos(19\pi/6)$



Find $\sin(-13\pi/4)$

Question 3

If $\sin(\theta) = \frac{-24}{25}$, and θ is in quadrant IV, determine an exact value for $\tan(\theta)$.

Question 4

A mass-spring system oscillates vertically with an amplitude of 2.64 meters, a midline at $y = 6.51$ meters, and a frequency of 7.71 Hz. At $t = 0$, the mass is at the minimum height. Write an equation to model the height (y in meters) as a function of time (t in seconds).

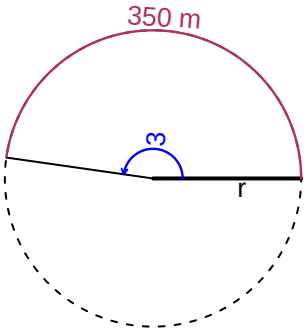
Name: Date:

Trig Final (TEST v684)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

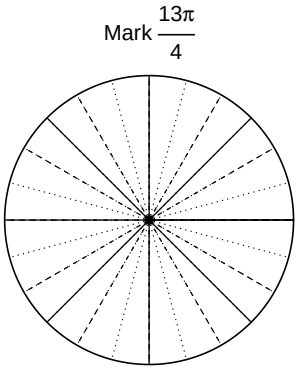
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The angle measure is 3 radians. The arc length is 350 meters. How long is the radius in meters?

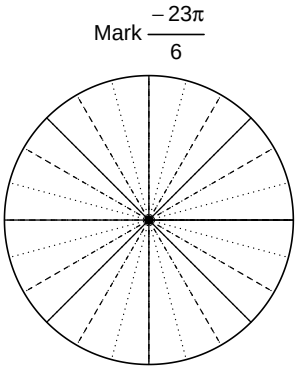


Question 2

Consider angles $\frac{13\pi}{4}$ and $\frac{-23\pi}{6}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\cos\left(\frac{13\pi}{4}\right)$ and $\sin\left(\frac{-23\pi}{6}\right)$ by using a unit circle (provided separately).



Find $\cos(13\pi/4)$



Find $\sin(-23\pi/6)$

Question 3

If $\sin(\theta) = \frac{-80}{89}$, and θ is in quadrant IV, determine an exact value for $\tan(\theta)$.

Question 4

A mass-spring system oscillates vertically with a frequency of 2.62 Hz, a midline at $y = -5.41$ meters, and an amplitude of 7.03 meters. At $t = 0$, the mass is at the minimum height. Write an equation to model the height (y in meters) as a function of time (t in seconds).

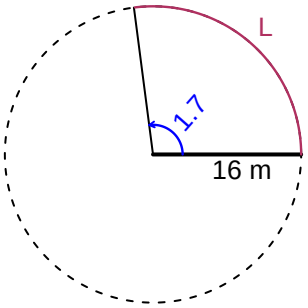
Name: Date:

Trig Final (TEST v685)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

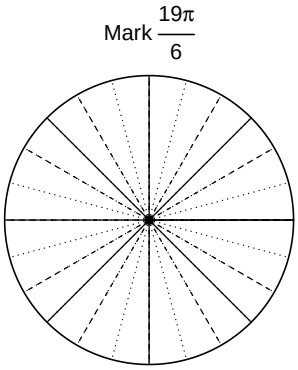
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The radius is 16 meters. The angle measure is 1.7 radians. How long is the arc in meters?

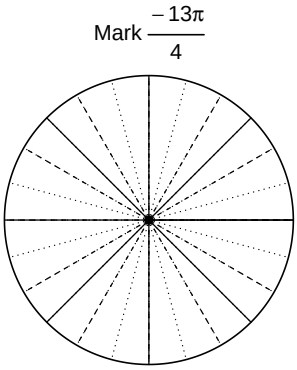


Question 2

Consider angles $\frac{19\pi}{6}$ and $\frac{-13\pi}{4}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\cos\left(\frac{19\pi}{6}\right)$ and $\sin\left(\frac{-13\pi}{4}\right)$ by using a unit circle (provided separately).



Find $\cos(19\pi/6)$



Find $\sin(-13\pi/4)$

Question 3

If $\tan(\theta) = \frac{24}{7}$, and θ is in quadrant III, determine an exact value for $\cos(\theta)$.

Question 4

A mass-spring system oscillates vertically with a frequency of 2.32 Hz, an amplitude of 6.58 meters, and a midline at $y = 3.66$ meters. At $t = 0$, the mass is at the minimum height. Write an equation to model the height (y in meters) as a function of time (t in seconds).

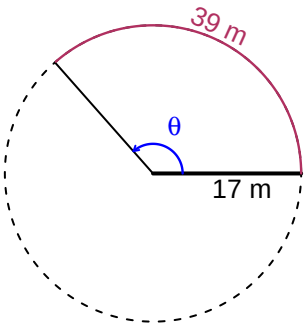
Name: Date:

Trig Final (TEST v686)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

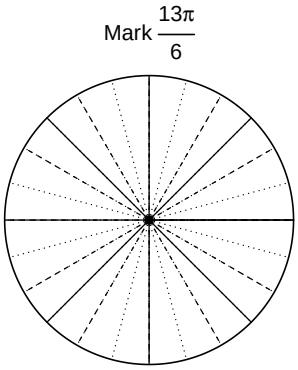
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The arc length is 39 meters. The radius is 17 meters. What is the angle measure in radians?

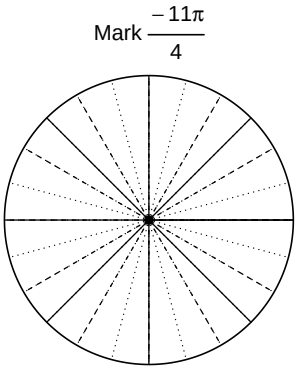


Question 2

Consider angles $\frac{13\pi}{6}$ and $\frac{-11\pi}{4}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\sin\left(\frac{13\pi}{6}\right)$ and $\cos\left(\frac{-11\pi}{4}\right)$ by using a unit circle (provided separately).



Find $\sin(13\pi/6)$



Find $\cos(-11\pi/4)$

Question 3

If $\sin(\theta) = \frac{-45}{53}$, and θ is in quadrant IV, determine an exact value for $\tan(\theta)$.

Question 4

A mass-spring system oscillates vertically with a frequency of 5.6 Hz, an amplitude of 8.89 meters, and a midline at $y = -2.24$ meters. At $t = 0$, the mass is at the midline and moving up. Write an equation to model the height (y in meters) as a function of time (t in seconds).

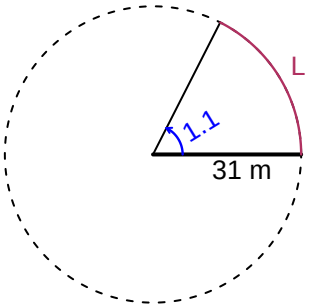
Name: Date:

Trig Final (TEST v687)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

Question 1

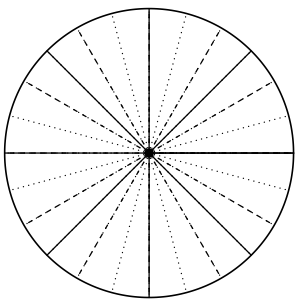
In the figure below, we see a circle and a central angle that subtends an arc. The angle measure is 1.1 radians. The radius is 31 meters. How long is the arc in meters?



Question 2

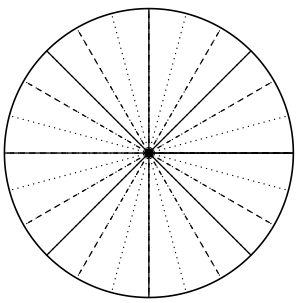
Consider angles $\frac{13\pi}{6}$ and $\frac{-9\pi}{4}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\cos\left(\frac{13\pi}{6}\right)$ and $\sin\left(\frac{-9\pi}{4}\right)$ by using a unit circle (provided separately).

Mark $\frac{13\pi}{6}$



Find $\cos(13\pi/6)$

Mark $\frac{-9\pi}{4}$



Find $\sin(-9\pi/4)$

Question 3

If $\cos(\theta) = \frac{-39}{89}$, and θ is in quadrant II, determine an exact value for $\sin(\theta)$.

Question 4

A mass-spring system oscillates vertically with an amplitude of 2.79 meters, a frequency of 8.5 Hz, and a midline at $y = -7.03$ meters. At $t = 0$, the mass is at the midline and moving down. Write an equation to model the height (y in meters) as a function of time (t in seconds).

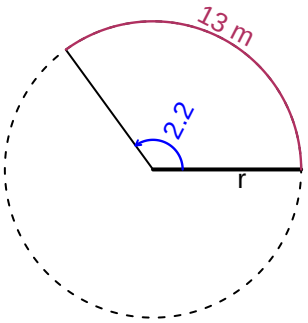
Name: Date:

Trig Final (TEST v688)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

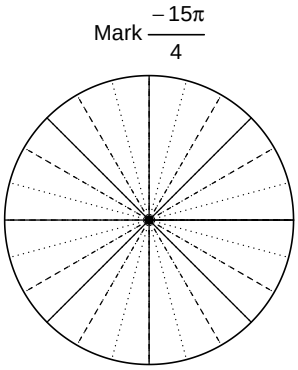
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The angle measure is 2.2 radians. The arc length is 13 meters. How long is the radius in meters?

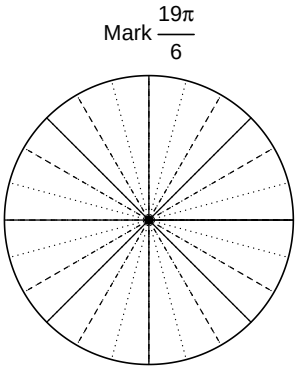


Question 2

Consider angles $\frac{-15\pi}{4}$ and $\frac{19\pi}{6}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\cos\left(\frac{-15\pi}{4}\right)$ and $\sin\left(\frac{19\pi}{6}\right)$ by using a unit circle (provided separately).



Find $\cos(-15\pi/4)$



Find $\sin(19\pi/6)$

Question 3

If $\sin(\theta) = \frac{-80}{89}$, and θ is in quadrant III, determine an exact value for $\tan(\theta)$.

Question 4

A mass-spring system oscillates vertically with a midline at $y = -8.11$ meters, an amplitude of 4.26 meters, and a frequency of 6.95 Hz. At $t = 0$, the mass is at the minimum height. Write an equation to model the height (y in meters) as a function of time (t in seconds).

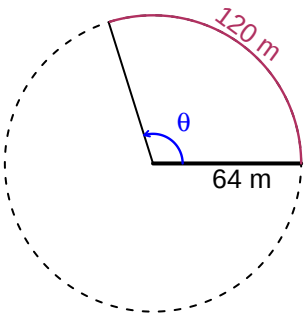
Name: Date:

Trig Final (TEST v689)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

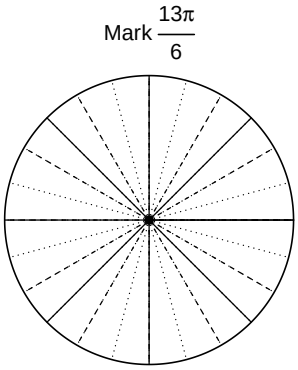
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The radius is 64 meters. The arc length is 120 meters. What is the angle measure in radians?

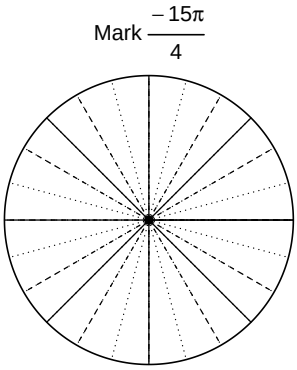


Question 2

Consider angles $\frac{13\pi}{6}$ and $\frac{-15\pi}{4}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\cos\left(\frac{13\pi}{6}\right)$ and $\sin\left(\frac{-15\pi}{4}\right)$ by using a unit circle (provided separately).



Find $\cos(13\pi/6)$



Find $\sin(-15\pi/4)$

Question 3

If $\tan(\theta) = \frac{21}{20}$, and θ is in quadrant III, determine an exact value for $\sin(\theta)$.

Question 4

A mass-spring system oscillates vertically with a midline at $y = -2.2$ meters, an amplitude of 6.63 meters, and a frequency of 5.61 Hz. At $t = 0$, the mass is at the midline and moving up. Write an equation to model the height (y in meters) as a function of time (t in seconds).

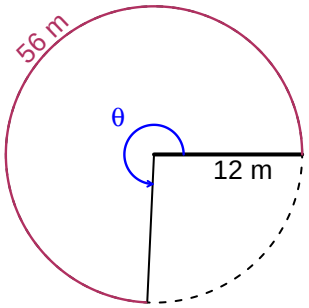
Name: Date:

Trig Final (TEST v690)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

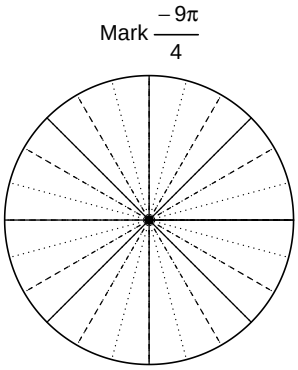
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The radius is 12 meters. The arc length is 56 meters. What is the angle measure in radians?

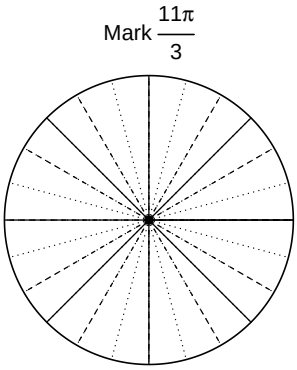


Question 2

Consider angles $\frac{-9\pi}{4}$ and $\frac{11\pi}{3}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\sin\left(\frac{-9\pi}{4}\right)$ and $\cos\left(\frac{11\pi}{3}\right)$ by using a unit circle (provided separately).



Find $\sin(-9\pi/4)$



Find $\cos(11\pi/3)$

Question 3

If $\tan(\theta) = \frac{-63}{16}$, and θ is in quadrant IV, determine an exact value for $\cos(\theta)$.

Question 4

A mass-spring system oscillates vertically with a midline at $y = 8.93$ meters, an amplitude of 6.96 meters, and a frequency of 4.25 Hz. At $t = 0$, the mass is at the minimum height. Write an equation to model the height (y in meters) as a function of time (t in seconds).

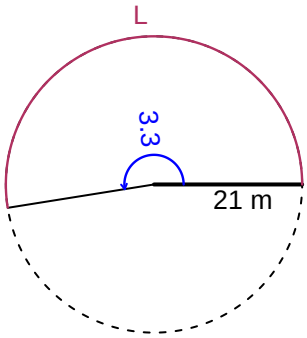
Name: Date:

Trig Final (TEST v691)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

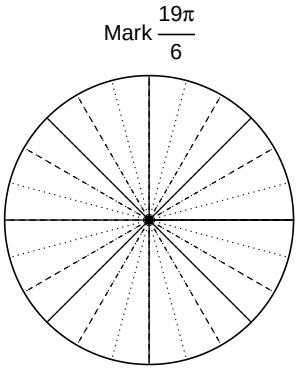
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The radius is 21 meters. The angle measure is 3.3 radians. How long is the arc in meters?

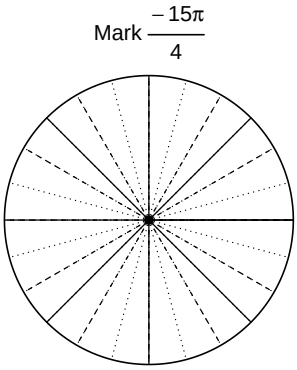


Question 2

Consider angles $\frac{19\pi}{6}$ and $\frac{-15\pi}{4}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\sin\left(\frac{19\pi}{6}\right)$ and $\cos\left(\frac{-15\pi}{4}\right)$ by using a unit circle (provided separately).



Find $\sin(19\pi/6)$



Find $\cos(-15\pi/4)$

Question 3

If $\cos(\theta) = \frac{65}{97}$, and θ is in quadrant IV, determine an exact value for $\tan(\theta)$.

Question 4

A mass-spring system oscillates vertically with a frequency of 8.63 Hz, an amplitude of 5.62 meters, and a midline at $y = -6.72$ meters. At $t = 0$, the mass is at the minimum height. Write an equation to model the height (y in meters) as a function of time (t in seconds).

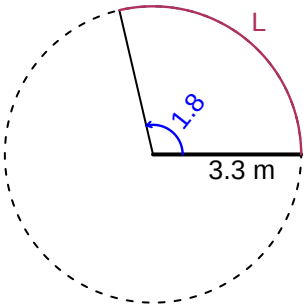
Name: Date:

Trig Final (TEST v692)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

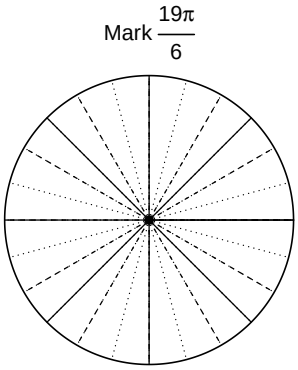
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The angle measure is 1.8 radians. The radius is 3.3 meters. How long is the arc in meters?

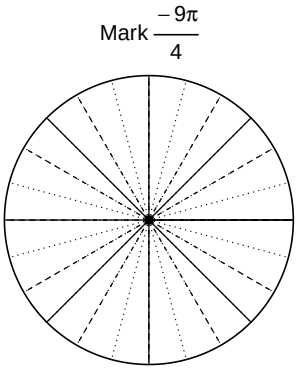


Question 2

Consider angles $\frac{19\pi}{6}$ and $\frac{-9\pi}{4}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\sin\left(\frac{19\pi}{6}\right)$ and $\cos\left(\frac{-9\pi}{4}\right)$ by using a unit circle (provided separately).



Find $\sin(19\pi/6)$



Find $\cos(-9\pi/4)$

Question 3

If $\cos(\theta) = \frac{-8}{17}$, and θ is in quadrant III, determine an exact value for $\tan(\theta)$.

Question 4

A mass-spring system oscillates vertically with a frequency of 3.56 Hz, an amplitude of 5.75 meters, and a midline at $y = 8.97$ meters. At $t = 0$, the mass is at the minimum height. Write an equation to model the height (y in meters) as a function of time (t in seconds).

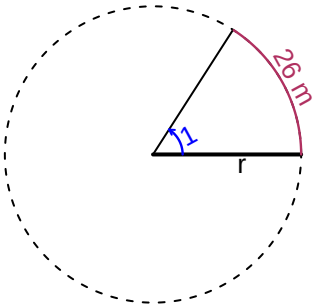
Name: Date:

Trig Final (TEST v693)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

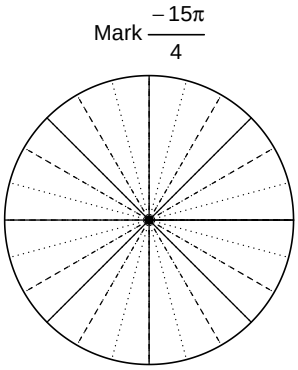
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The arc length is 26 meters. The angle measure is 1 radians. How long is the radius in meters?

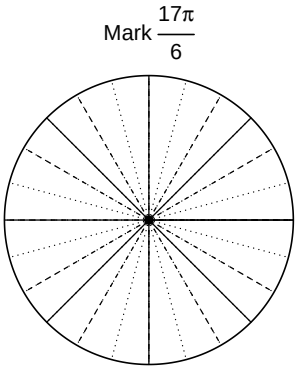


Question 2

Consider angles $\frac{-15\pi}{4}$ and $\frac{17\pi}{6}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\cos\left(\frac{-15\pi}{4}\right)$ and $\sin\left(\frac{17\pi}{6}\right)$ by using a unit circle (provided separately).



Find $\cos(-15\pi/4)$



Find $\sin(17\pi/6)$

Question 3

If $\cos(\theta) = \frac{-8}{17}$, and θ is in quadrant III, determine an exact value for $\tan(\theta)$.

Question 4

A mass-spring system oscillates vertically with a frequency of 8.91 Hz, an amplitude of 6.74 meters, and a midline at $y = 3.92$ meters. At $t = 0$, the mass is at the maximum height. Write an equation to model the height (y in meters) as a function of time (t in seconds).

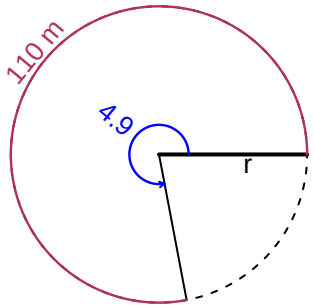
Name: Date:

Trig Final (TEST v694)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

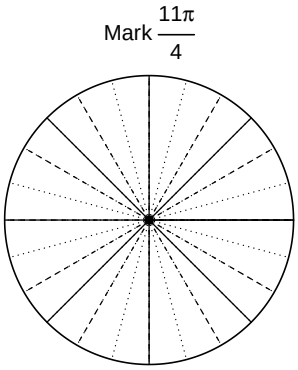
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The angle measure is 4.9 radians. The arc length is 110 meters. How long is the radius in meters?

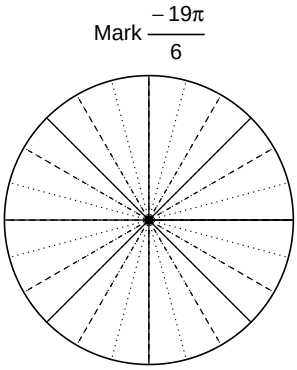


Question 2

Consider angles $\frac{11\pi}{4}$ and $\frac{-19\pi}{6}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\cos\left(\frac{11\pi}{4}\right)$ and $\sin\left(\frac{-19\pi}{6}\right)$ by using a unit circle (provided separately).



Find $\cos(11\pi/4)$



Find $\sin(-19\pi/6)$

Question 3

If $\sin(\theta) = \frac{60}{61}$, and θ is in quadrant II, determine an exact value for $\cos(\theta)$.

Question 4

A mass-spring system oscillates vertically with a frequency of 4.32 Hz, a midline at $y = 2.88$ meters, and an amplitude of 5.55 meters. At $t = 0$, the mass is at the midline and moving up. Write an equation to model the height (y in meters) as a function of time (t in seconds).

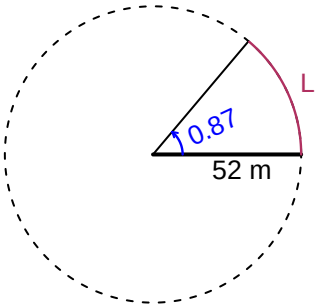
Name: Date:

Trig Final (TEST v695)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

Question 1

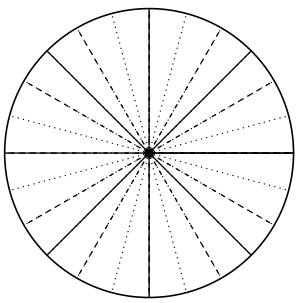
In the figure below, we see a circle and a central angle that subtends an arc. The angle measure is 0.87 radians. The radius is 52 meters. How long is the arc in meters?



Question 2

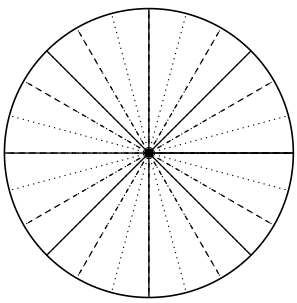
Consider angles $\frac{-13\pi}{6}$ and $\frac{9\pi}{4}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\sin\left(\frac{-13\pi}{6}\right)$ and $\cos\left(\frac{9\pi}{4}\right)$ by using a unit circle (provided separately).

Mark $\frac{-13\pi}{6}$



Find $\sin(-13\pi/6)$

Mark $\frac{9\pi}{4}$



Find $\cos(9\pi/4)$

Question 3

If $\sin(\theta) = \frac{21}{29}$, and θ is in quadrant II, determine an exact value for $\cos(\theta)$.

Question 4

A mass-spring system oscillates vertically with an amplitude of 7.85 meters, a frequency of 4.85 Hz, and a midline at $y = 3.82$ meters. At $t = 0$, the mass is at the midline and moving up. Write an equation to model the height (y in meters) as a function of time (t in seconds).

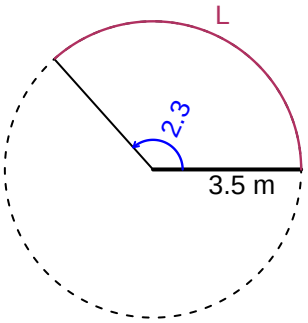
Name: Date:

Trig Final (TEST v696)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

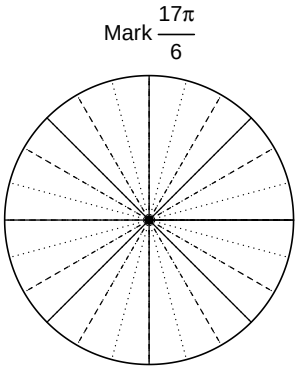
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The radius is 3.5 meters. The angle measure is 2.3 radians. How long is the arc in meters?

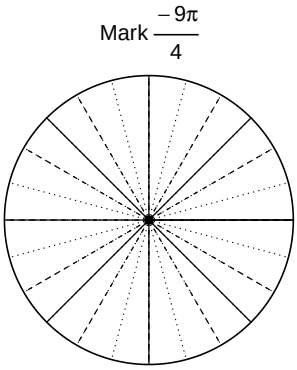


Question 2

Consider angles $\frac{17\pi}{6}$ and $\frac{-9\pi}{4}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\cos\left(\frac{17\pi}{6}\right)$ and $\sin\left(\frac{-9\pi}{4}\right)$ by using a unit circle (provided separately).



Find $\cos(17\pi/6)$



Find $\sin(-9\pi/4)$

Question 3

If $\sin(\theta) = \frac{56}{65}$, and θ is in quadrant II, determine an exact value for $\tan(\theta)$.

Question 4

A mass-spring system oscillates vertically with a frequency of 8.22 Hz, an amplitude of 3.87 meters, and a midline at $y = -6.23$ meters. At $t = 0$, the mass is at the maximum height. Write an equation to model the height (y in meters) as a function of time (t in seconds).

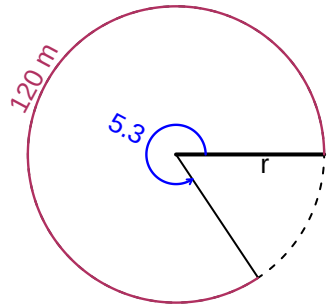
Name: Date:

Trig Final (TEST v697)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

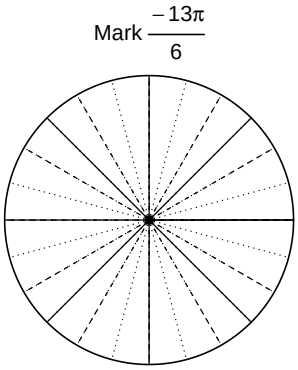
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The angle measure is 5.3 radians. The arc length is 120 meters. How long is the radius in meters?

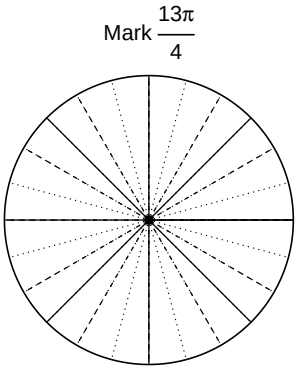


Question 2

Consider angles $\frac{-13\pi}{6}$ and $\frac{13\pi}{4}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\sin\left(\frac{-13\pi}{6}\right)$ and $\cos\left(\frac{13\pi}{4}\right)$ by using a unit circle (provided separately).



Find $\sin(-13\pi/6)$



Find $\cos(13\pi/4)$

Question 3

If $\sin(\theta) = \frac{-72}{97}$, and θ is in quadrant III, determine an exact value for $\tan(\theta)$.

Question 4

A mass-spring system oscillates vertically with a frequency of 7.51 Hz, an amplitude of 4.25 meters, and a midline at $y = -2.09$ meters. At $t = 0$, the mass is at the midline and moving up. Write an equation to model the height (y in meters) as a function of time (t in seconds).

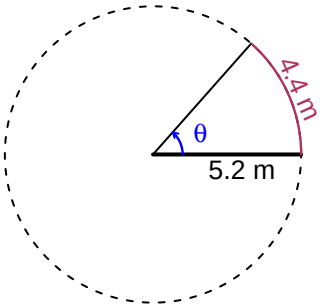
Name: Date:

Trig Final (TEST v698)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

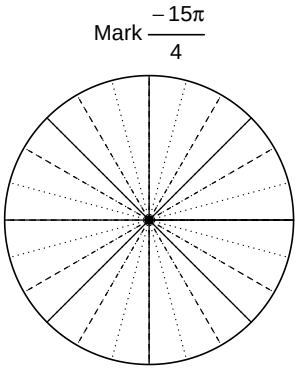
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The arc length is 4.4 meters. The radius is 5.2 meters. What is the angle measure in radians?

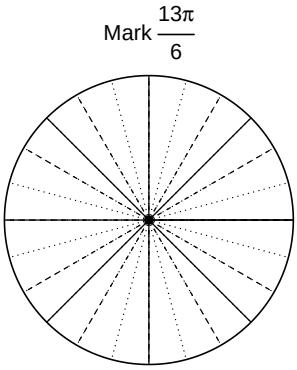


Question 2

Consider angles $\frac{-15\pi}{4}$ and $\frac{13\pi}{6}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\sin\left(\frac{-15\pi}{4}\right)$ and $\cos\left(\frac{13\pi}{6}\right)$ by using a unit circle (provided separately).



Find $\sin(-15\pi/4)$



Find $\cos(13\pi/6)$

Question 3

If $\tan(\theta) = \frac{24}{7}$, and θ is in quadrant III, determine an exact value for $\sin(\theta)$.

Question 4

A mass-spring system oscillates vertically with an amplitude of 7.72 meters, a midline at $y = 2.79$ meters, and a frequency of 4.38 Hz. At $t = 0$, the mass is at the midline and moving down. Write an equation to model the height (y in meters) as a function of time (t in seconds).

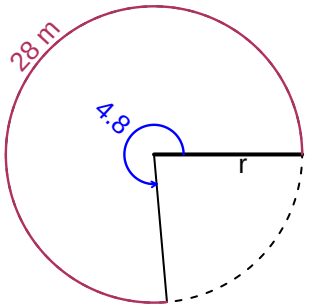
Name: Date:

Trig Final (TEST v699)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

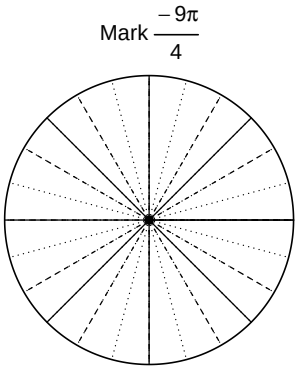
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The angle measure is 4.8 radians. The arc length is 28 meters. How long is the radius in meters?

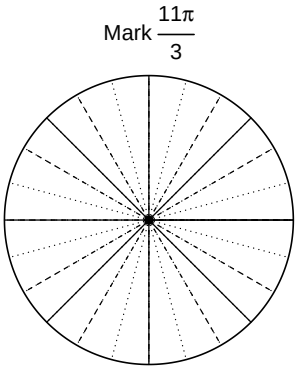


Question 2

Consider angles $\frac{-9\pi}{4}$ and $\frac{11\pi}{3}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\sin\left(\frac{-9\pi}{4}\right)$ and $\cos\left(\frac{11\pi}{3}\right)$ by using a unit circle (provided separately).



Find $\sin(-9\pi/4)$



Find $\cos(11\pi/3)$

Question 3

If $\cos(\theta) = \frac{-11}{61}$, and θ is in quadrant III, determine an exact value for $\sin(\theta)$.

Question 4

A mass-spring system oscillates vertically with an amplitude of 5.25 meters, a frequency of 8.67 Hz, and a midline at $y = -7.07$ meters. At $t = 0$, the mass is at the maximum height. Write an equation to model the height (y in meters) as a function of time (t in seconds).